



**E-commerce Adoption by Small and Medium
Enterprises
A Multiple Perspective Investigation in Saudi Arabia**

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Abstract

In recent years, electronic commerce has become one of the most popular ways to shop worldwide. The rising popularity of this phenomenon has provided enormous benefits for both business and consumers, such as quick distribution, saving time and money, easy-to-compare prices, and options with respect to goods. Moreover, to achieve the best outcomes from using such technology, governments and commercial organisations have devoted their attention to investigating every aspect that might affect the adoption and development of electronic commerce.

Saudi Arabia is one of those countries which seek to benefit from electronic commerce's advantages. Saudi Arabia is economically developed but not entirely so, as it is in the process of developing further and adopting more innovation. In this regard, this research assesses the extent to which e-commerce platforms are used in Saudi Arabia. Assessments are based on rising popularity and the benefits to business and customers alike in the Kingdom of Saudi Arabia.

This study aims to explore the concept of e-commerce in medium-sized and small enterprises to assess multiple perspectives in the domains of Saudi Arabia. It cannot be assumed that with the rapid technological growth across the globe, modes of life have been comprehensively transformed, and everything has been transformed into online means. Likewise, the limitations of e-commerce cannot be discarded at any cost because of the ease of functionality of all the tasks. It is easy now to sell or purchase any product or service through online electronic platforms.

This research investigates the adoption of e-commerce by small and medium enterprises that are using a business-to-consumer model in Saudi Arabia. The aim is to investigate the status of electronic commerce in Saudi Arabia and to identify the factors influencing its level of adoption. Also, the study covers the potential groups involved in this, i.e. small and medium-sized enterprises, Saudi consumers, relevant governmental departments, and supporting industries. From the relevant literature, theoretical research models and the exploratory study undertaken, a set of eleven potential factors impacting e-commerce adoption is suggested.

Proper model construction and research hypotheses have been designed, and multiple research methods have been adopted to collect the required data from the four different groups. Discriminant analysis has been applied to the quantitative data consisting of 525 survey responses from Saudi citizens and 488 from Saudi small and medium-sized enterprises. A qualitative analysis of 17 interviews conducted with relevant government departments and supporting industries has been undertaken. This study provided a validated checklist of factors dynamically affecting e-commerce adoption to researchers and policymakers.

On the basis of outcomes related to which factors are most relevant, the impacts on business growth and customer attitude are assessed. Moreover, the least significant factors are also analysed. Analysis of SPSS data interpretation offers clear explications for the analysis of both primary and discriminant factors. Assessments of the group probabilities for classifying the results have been obtained based on SPSS data interpretation.

In the last chapter of this research, observations related to the interpretation of results are given, as well as validation of the hypotheses based on model construction and descriptive analysis of demographic profiles as well. As per the research done, all eleven hypotheses were statistically supported. The establishment of significant and positive impacts of e-commerce adoption include those on human resources, business resources, SME awareness, technological resources, SMEs commitment, governance, e-readiness on the part of the government and supporting industries, social factors, and consumer awareness of e-commerce.

Moreover, the originality of the research lies in the country of origin, the corporate sector of SMEs under consideration, and the e-commerce aspects which are discussed as per the hypotheses. The evaluation was also included in the limitations of this research. This includes limitations like increased time consumption, compromised decisions in certain cases, subjective and biased decisions, limited analysis of the subject, conducting the report in an uncontrollable environment, and uncertain responsibilities.

The research outlines various factors that could affect overall e-commerce adoption. It will help SMEs as well as researchers to further develop their research from these findings by suggesting effective methods for lowering the resistance to e-commerce adoption in SMEs as well as in a large corporation. These considerations will have to be addressed by the economic, political, and social scenarios of Saudi Arabia while doing research in this field.

Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions in this thesis are the work of the named candidate and have not been submitted for any other academic award.

Word Count: 62,984 Words

Maher Saeed Alhindi

Signature:

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Date: 02/01/2019

List of Abbreviations and Acronyms

ANOVA	Analysis of Variance
ATM	Automated Teller Machine
B2B	Business-to-Business
B2C	Business-to-Consumer
BR	Business Resources
C2B	Consumer-to-Business
C2C	Consumer-to-Consumer
CESUL	Consumers' E-shopping Usage Level
CITC	Communications and Information Technology Commission
CMC	Computer-Mediated Communication
CRS	Corporate Social Responsibility
CSF	Critical Success Factors
CSR	Corporate Social Responsibility
DA	Discriminant Analysis
DF	Discriminant Function
DOI	Diffusion of Innovation Model
DSL	Digital Subscriber Line
DTI	Debt-to-Income Ratio
DV	Dependent Variable
EC	Electronic commerce
ECAL	Electronic Commerce Adoption Level
E-commerce	Electronic Commerce
EDI	Electronic Data Interchange
E-readiness	Electronic Readiness
ERM	Enterprise Resource Management
ESRC	Economic and Social Research Council
GBP	British Pound Sterling
GDP	Gross Domestic Product

GER	Government Electronic Readiness
GOV	Government
HR	Human Resources
HTTP	HyperText Transfer Protocol
IBM	International Business Machines Corporation
ICT	Information and Communication Technology
IS	Information Systems
IT	Information Technology
KAU	King Abdul Aziz University
LAN	Local Area Network
MCI	Ministry of Commerce and Investment
MFER	Market Force Electronic Readiness
MOI	Ministry of Interior
NCB	National Commercial Bank
OA	Organisational Awareness
OC	Organisational Commitment
OG	Organisational Governance
PCs	Personal Computers
PEER	Perceived Environmental E-Readiness
PEOU	Perceived Ease of Use
PERM	Perceived Electronic Readiness Model
POER	Perceived Organisational E-Readiness
PU	Perceived Usefulness
SADAD	Central System for Displaying and Paying Invoices and Making a Variety of Other Payments, Developed by the Saudi Arabian Monetary Authority
SAMBA	Saudi American Bank
SECE	Secure Electronic Commerce Environment
SET	Secure Electronic Transaction
SIER	Supporting Industries' Electronic Readiness
SMEs	Small and Medium Enterprises

SPSS	Statistical Package for Social Sciences
SR	Saudi Riyal
SSL	Secure Sockets Layer
TAM	Technology Acceptance Model
TOE	Technology-Organisation-Environment
TPB	Theory of Planned Behaviour
TR	Technological Resources
TRA	Theory of Reasoned Action
UK	United Kingdom
USA	United States of America
UTAUT	Unified Theory of Acceptance and Use of Technology
WAN	WAN
WWW	World Wide Web

Acknowledgments

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I am very grateful to my supervisor Professor Alessio Ishizaka for his support, guidance and valuable advice throughout my journey. Words cannot express how grateful I am for all his help and support. Having such a supervisor has been a great honour for me.

Certainly, this study would not have been possible without the support and prayers from my mother, Nawal Darwish; thanks are given for all her prayers and patience.

I would like to sincerely thank all the individuals who have helped and supported me to complete this study.

All thanks and appreciation are owed to my dear wife, Dr Nujoud Srdar, for all her support and sacrifices throughout the journey of my studies.

Publications

Some of the material contained in this dissertation has been presented in the following publications.

Refereed Book Chapter:

- Xu, M., Alhindi, M., Ishizaka, A., & Read, M. (2016). E-business adoption in SME-models and determinants: A comparative review of the UK and Saudi Arabia. In *Encyclopaedia of e-commerce development, implementation, and management* (pp. 453–469). IGI Global.

Refereed Conference Papers:

- Xu, M., Alhindi, M., Ishizaka, A., & Read, M. (2015). Factors affecting e-commerce adoption by SMEs (B2C) in Saudi Arabia: An explorative study. *The 2nd International Conference on eBusiness, e-Commerce, management, eLearning, and eGovernance 2015*. 24–25 July 2015, London, UK.
- Alhindi, M., Ishizaka, Xu, M., A., & Read, M. (2014). What are the factors affecting e-commerce adoption in Saudi SMEs? An exploratory study. *7th Saudi Students Conference*. February 2014, UK.

Dedication

To my father's soul, Saeed.

I still remember the day you wished that one of your sons would just get a bachelor's degree!

I wish you were here to witness and share this day with me.

I hope you rest in peace and may God grant you a place in paradise and gather us there.

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Chapter 1: Introduction

1.1. Background

The concept of online shopping was initially developed in the mid-90s. It is remarkable that within a short time, the platform has reached the heights of productivity and innovation with the use of the World Wide Web for electronic fund transfers, the management of supply chains, online processing and transactions, electronic interchange of data, inventory maintenance and management systems with automated data collection tools along with a wider range of technological implications, such as email, mobile apps, and the quick connection and networking of different apps with each other. Even today, after a considerable passage of time, the so-called dot-coms and the revolutionary things of the internet are still new (Sheikh, Islam, Rana, Hameed, & Saeed, 2017).

The history of this system is not far behind, as sales of electricity, cables, modems, and other elements have become part of the humans' routines. In 1991, the use of the internet for commercial sites and businesses also became possible. Since then, thousands of new start-up businesses have started websites. In the initial years of the 2000s, an enormous number of companies across Europe and the United States were developed and representing their services through the World Wide Web (Mirza, 2019).

The significance of e-commerce cannot be denied, as it has gained immense popularity in recent years, and there are still lots of opportunities available, which will contribute to the maintenance of business electronically at both national and international levels. With the creation of a unique identity on webs, assistance was provided for marketing tasks and product sales as well. In this regard, most countries have been opting for these online modes of business, even among small and medium-sized businesses.

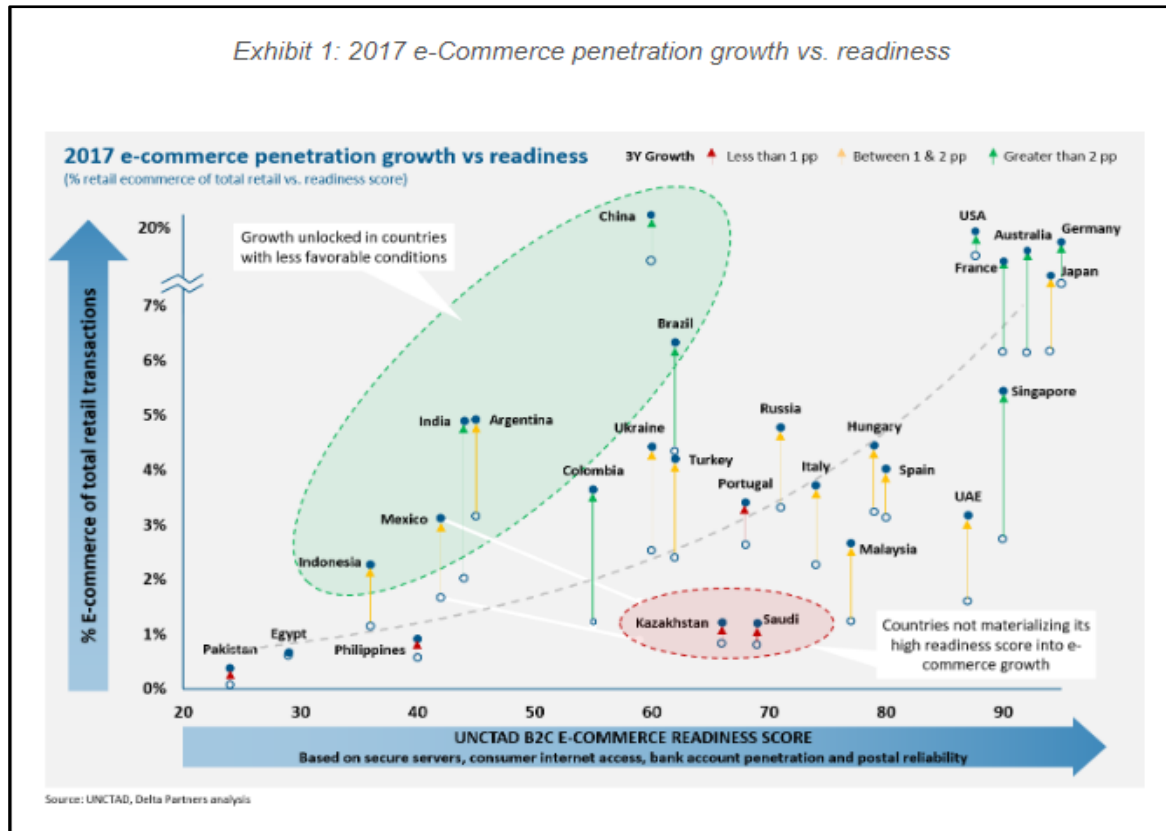


Figure 1.2: E-commerce readiness score

However, in most developing countries, these online modes of business are still in progress, and thus, Saudi Arabia as a developing country, has been adopting these trends (Alqahtani, Goodwin, & de Vries, 2018).

In recent years, e-shopping has become one of the most popular ways to shop worldwide. The rising popularity of this phenomenon provides huge benefits for both business owners and consumers, such as quick distribution, saving time and money, easy-to-compare prices, and options for goods. Moreover, in order to achieve the best outcomes from using such technology, governments and commercial organisations have devoted their attention to studying every aspect that might affect the adoption and development of e-business (Al-Harby, 2006). Swaminathan and Tayur (2003) have described e-business as using the internet or any electronic channel to conduct the business process; this includes buying and selling transactions.

In developed countries, such as the UK and the USA, the development and use of e-business are at a sophisticated level; however, they are continually introducing

innovations to enhance this field (Molla & Licker, 2005). On the other hand, developing countries are encountering obstacles that affect the adoption and implementation of e-commerce, which in turn has caused an obvious lack of use of this technology (Alam, 2009; Alam, Ali, & Jani, 2011; Al-Harby, 2006; Al-Hudhaif & Alkubeyyer, 2011; Al-Qirim, 2010; Kabanda & Brown, 2010; Mbamba, 2006; Molla & Licker, 2005b; Wymer & Regan, 2005; Yu, Lu, & Dong, 2010). These obstacles include organisational aspects, such as awareness, human resources, business resources, technological resources, commitment, and governance. Furthermore, they include environmental issues, such as market forces, governmental issues, supporting industries' issues, and social and religious issues (AbouSaber, 2007; Al-Harby, 2006; Al-Hudhaif & Alkubeyyer, 2011; Molla & Licker, 2005b; Sait, Al-Tawil, & Hussain, 2004; Tan, Tyler, & Manica, 2007). Of these developing countries, the Kingdom of Saudi Arabia (KSA) is one that seeks to take advantage of this technology as much as possible to keep pace with developments in the e-commerce revolution that is happening throughout the world. Accordingly, its government is paying much attention to enhancing the development and implementation of this technology throughout the country (Kurdi, 2008).

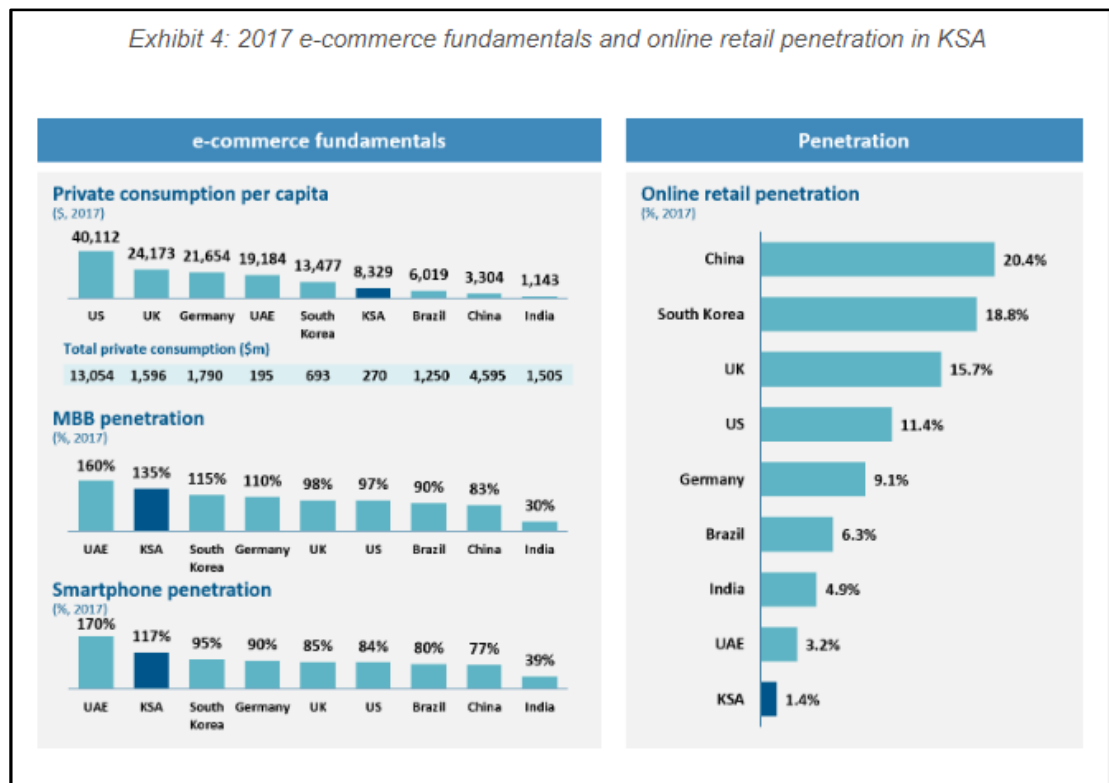


Figure 1.3 E-commerce fundamentals and online retail penetration

Also, according to SUSRIS (2011), the business trading community in Saudi Arabia does not tend to use e-commerce. Their results show that in 2010 only 12% of enterprises used e-commerce to conduct business compared to 9% in 2007. This represents slow growth and a small increase, which may be explained by a lack of interest in this type of trading, lack of an appropriate environment, or a lack of confidence in conducting e-commerce along with an inadequate understanding of e-commerce. It was noted that 12% of enterprises mentioned offering this service with an option to pay on delivery only; that is, there is no provision to provide online payment services as yet being offered by companies.

Small and medium enterprises (SMEs) in Saudi Arabia represent 90% of the entire business community (SUSRIS, 2011); this, however, translates into only 25% of total employment and 33% of Gross Domestic Product (GDP). Therefore, Saudi Arabia is focusing on economic diversification where SMEs would contribute to more than 50% of the country's GDP (SUSRIS, 2011). This current business picture of the country indicates the need for the successful development of e-business in Saudi Arabia to promote the required SME contributions.

In order to initiate the online business, e-commerce stores in the country need to use eye-catching visuals and offer greater user friendliness to provide customers with greater satisfaction than offered by traditional modes of shopping. Besides that, persistent content and intuitive navigation are required for the maintenance of better systematic intimations with improved features to attract more customers to the website. To depict the significant factors for the execution of e-commerce, it is first necessary to mention the actual conception of e-commerce business, as it simply means the business trading via the internet (Alqammash, 2018).

Also, one of the main target groups of Saudi SMEs is individual consumers (Al-maghrabi, Dennis, & Halliday, 2011; Al-Somali, Clegg, & Gholami, 2010; Aleid, Rogerson, & Fairweather, 2010; Sait et al., 2004; Sohail, Sayeed, & Kaleemuddin, 2008). Moreover, B2C activities should tap into the huge spending power of the Saudi population, which gives high significance to the benefits of adopting e-business technology national wide in addition to the many advantages of e-business, such as the

chance to experience the transformation from local to national markets and from national to international markets.

1.2. Importance of Conducting This Research

It cannot be denied that the digital transformation is upending the globe and specifically the region of the Gulf Cooperation countries. The waves of disruption have increased under the pressure of rising e-commerce. In this regard, it is an observable fact that Gulf countries, specifically Saudi Arabia, are trying to catch up with the rest of the globe, stay ahead of the curve, and pre-empt an upheaval, as the digital marketplace is continuously being transformed with new innovative business models.

Saudi Arabia is an economically rich country, but it is quite far behind in technological innovations and development; thus, in this regard, this research contributes to understanding the influence of critical factors on the e-commerce industry of Saudi Arabia. Retailers have been suffering from customer migration from offline to online during this commerce boom. E-commerce in 2017 was about 1.4%, which is much less than that of US records for the year 2005.

Over this period, Saudi Arabia has acknowledged the importance of adopting e-commerce to run their businesses successfully across the world. This is mainly due to a set of internal factors associated with an organisation along with several external factors associated with infrastructure and governmental support at large. It is important to identify the importance of adopting e-commerce in Saudi Arabia, especially in SMEs, the factors leading to the adoption of e-commerce, and how it influences multiple enterprises in Saudi Arabia.

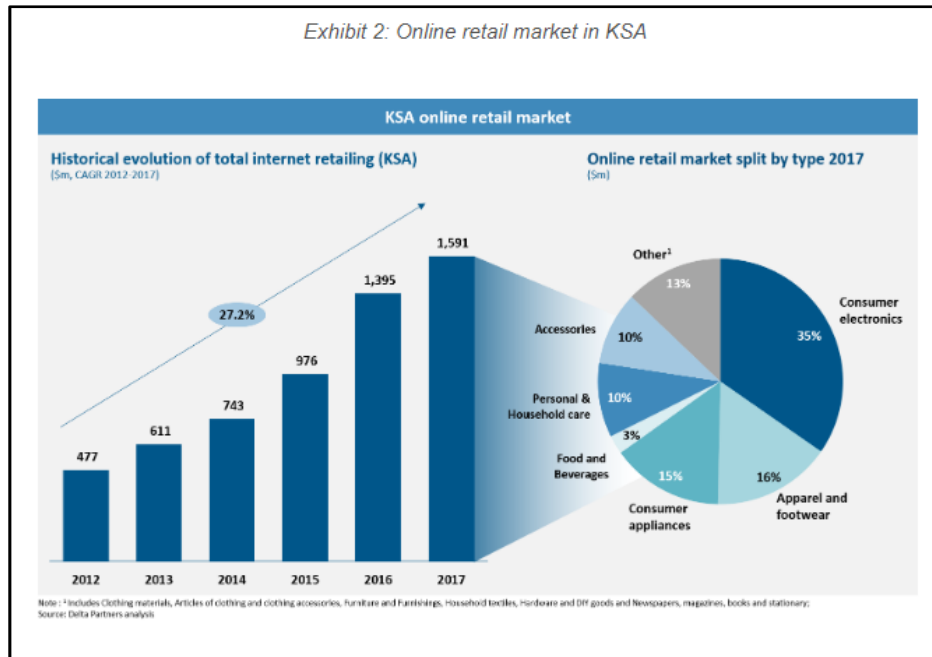


Figure 1.4 Online retail market in Saudi Arabia

Saudi Arabia has low credit card penetration and debit cards have faced numerous regulation hurdles so that cash on delivery is considered the most widely used method across KSA. It has been estimated that about 67% of people pay with cash, and this situation has led to a complicated situation for individuals related to the regulatory processes, such that merchants have been trying to develop a less complicated and more cost-effective system through the national banks for e-payments.

1.3. Research Purpose

The context of this research is within the principal topic, which is e-commerce adoption by developing countries. This topic includes several subtopics identified in the literature review, which include e-commerce adoption in Saudi Arabia, neighbouring countries and developing countries worldwide. Also, two different perspectives of e-commerce adoption have been considered—organisational perspective and environmental perspective—to cover all potential aspects affecting e-commerce adoption. Furthermore, theoretical research models of IT adoption have been considered to discover the most appropriate research model that matches the research goals and moreover to assess the literature to generate hypotheses, key definitions, and advantages and disadvantages of the e-businesses reviewed.

Some areas that would benefit from intervention policies have higher costs for internet access, including connection services fees, communication fees, and hosting charges for the websites, on account of which most of the people consider this platform to be complicated and expensive. This is the sole reason for the limited availability of credit cards and nationwide systems (Mirza, 2019).

1.4. The Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia is an Arabian Islamic country established in 1932 by King Abdul Aziz bin Abdul Rahman Al Saud. Saudi Arabia is located on the continent of Asia in the Middle East region (figure 1.5). The area of the country is 2.149.790 square kilometres, with a population of approximately 27 million people. Governmental systems in Saudi Arabia completely depend on Islamic religious guidance. It is the only country in the world that has this system that respects human rights, peace, equality, and justice. The government of Saudi Arabia pays great attention to the development of several aspects of life, such as health care, education, transportation, industry, communications, economy, society, and culture. The detailed development of all these aspects is a result of the comprehensive development plans of the country (CDSI—Central Department of Statistics & Information, 2010; Saudi Press Agency website, 2010).



Figure 1.5 Map of the Kingdom of Saudi Arabia (ace, n.d.)

1.5. Importance and Contribution of the Proposed Research

The importance of this research arises from many aspects that affect the adoption and development of e-commerce in Saudi Arabia. First, the high number of SMEs in Saudi Arabia should benefit from such technology to minimise their marketing expenses, maximise their incomes and move towards global markets through the adoption of such technology. Second, businesses need to understand the current e-commerce status to develop suitable business strategies in the future to ensure the success of using such technology. Next, the demand by the Saudi people who wish to benefit from such technology (Al-Gahtani, Hubona, & Wang, 2007; Al-Hudhaif & Alkubeyyer, 2011; Al-Mowalad, 2012; Al-Somali et al., 2009, 2010). Also, this research is important in that it provides information for the government to develop a better understanding of the reasons that may reduce the use of e-commerce in the country and discourage companies from implementing e-commerce systems.

On the other hand, the theoretical importance of this research is represented in the revision, alignment, and extension of Molla and Lickers' perceived e-readiness model (PERM) theoretical model to the case of Saudi Arabia. Although this model has been well constructed and validated in developing countries, the case of Saudi Arabia differs from some of those countries in a range of aspects, including culture, religion, business environment, and the political system of the country (Al-Hudhaif & Alkubeyyer, 2011; Al-Somali et al., 2010, 2011).

1.6. Statement of Aim and Objectives

The principal aim of this study was to identify the critical success factors (CSF) of e-commerce adoption by SMEs in Saudi Arabia, especially those using business to consumer (B2C) type business. This in turn will help the Saudi government and business enterprises to better understand the status of current e-commerce adoption and develop future strategies to assist in promoting e-commerce adoption nationwide.

To achieve this aim, this study needed to identify the factor appropriateness of PERM to the case of Saudi Arabia. It also explored additional potential factors that may exist in the case of Saudi Arabia in particular. The researcher considered that by achieving such goals, a set of critical success factors that mainly affect e-commerce adoption in Saudi Arabia, neighbourhood countries and developing countries would be identified. Furthermore, the results of this research will help in designing a comprehensive model to investigate the e-commerce adoption status of Saudi Arabia and developing countries that have the same characteristics. To achieve this aim, the study needed to accomplish six major objectives:

- 1) To identify the current status of e-commerce adoption in Saudi Arabia
- 2) To identify the importance of e-commerce solutions among SMEs in Saudi Arabia through multiple perspective investigation
- 3) To understand the diffusion of innovation and technology in terms of e-commerce and how it has influenced the Saudi SMEs
- 4) To develop and adopt a new theoretical model by reviewing, aligning, and extending the preserved e-readiness model (PERM) to match the case of Saudi Arabia and to cover four different groups of people involved in e-commerce

adoption (SMEs, Saudi consumers, supporting industries, and involved governmental departments)

- 5) To reveal the obstacles that hinder the progress of e-commerce adoption in Saudi Arabia.
- 6) To provide Saudi SMEs, supporting industries and the government with practical recommendations to enhance e-commerce adoption in Saudi Arabia.

The research explores the perspectives of the consumer, SMEs, the government, and supporting industries on the adoption of e-commerce. The main objective is to highlight the resistance to the adoption of e-commerce by exploring the internal and external factors of the economy, politics, technology, and technicality with respect to the adoption of e-commerce in SMEs.

1.7. Thesis Organisation

To accomplish the research objectives, this thesis is divided into eight chapters as follows:

Chapter 1:

Introduction: This chapter includes the background, research context, the Kingdom of Saudi Arabia, the importance and contribution of the proposed research, a statement of aim and objectives, and the thesis organisation.

Chapter 2:

Literature Review: This chapter includes a definition of SMEs, e-commerce and e-business, the history of e-commerce, the theoretical frameworks, theoretical background, the diffusion of innovations (DOI), technology acceptance model (TAM), technology-organisation-environment (TOE), the perceived e-readiness model (PERM), the appropriateness of PERM to the proposed study, an exploratory study of delivery issues, e-banking, education, culture and religion issues, factors affecting e-commerce adoption in Saudi Arabia, SME awareness, human resources, business resources, technological resources, commitment, governance, market forces' e-readiness, government e-readiness, supporting industries' e-readiness, e-commerce adoption,

social factors including culture and religion, consumer awareness, and gaps in the research literature.

Chapter 3:

The research hypotheses and model construction.

Chapter 4:

Research Methodology: this chapter includes an introduction, research philosophy, research design, research approach, the research populations and sampling methods, the SME stakeholder sample, along with a sample of Saudi customers, governmental departments and supporting industries, the data collection, interview method, questionnaire method, and the data analysis of interviews and questionnaires. Finally, the data analysis used in the research, research ethics, limitations, and a conclusion is included in this chapter.

Chapter 5:

This chapter includes the following: data analysis using surveys based on SME perspective, an introduction, model construction and hypotheses of SME perspective, data collection and screening, representative sample, adequate sample size, descriptive data analysis, a demographic profile, descriptive data of independent variables, quality of data gathered using Cronbach's alpha, a preliminary analysis, ANOVA, log determinants and Box's M test, discriminant analysis, canonical discriminant functions, eigenvalues, Wilks' lambda, unstandardised discriminant function coefficients, functions at group centroids, structure matrix (discriminant loading), prior probabilities for groups, classification results (confusion matrix) and cross-validation, and a conclusion.

Data analysis using surveys based on of consumer perspective, an introduction, model construction and hypotheses of consumer perspective, data collection and screening, a representative sample, adequate sample size, descriptive data analysis, demographic profile, descriptive data of independent variables, quality of data gathered using Cronbach's alpha, a preliminary analysis, ANOVA, log determinants and Box's M test, discriminant analysis, canonical discriminant functions, eigenvalues, Wilks' lambda, unstandardised discriminant function coefficients, functions at group centroids,

structure matrix (discriminant loading), prior probabilities for groups, classification results (confusion matrix) and cross-validation, and a conclusion.

Chapter 6:

This chapter includes the following: data analysis using interviews based on government perspective, an introduction, model construction and hypotheses, analysis strategy and coding, theme one: consumer awareness, Code1: assessment of consumer awareness, Code2: assessment of consumers' e-skills, Code3: assessment of governmental promotion of media role, Code 4: assessment of educational curriculums, Code5: GOV plans to promote consumer awareness, theme two: social and religion, Code6: importance of English language, Code7: English language skills of Saudi society, Code8: preference of physical shopping, Code9: conflicts between Islamic regulations and e-commerce, Code10: relation between e-shopping use and cultural aspects, theme three: government e-readiness, Code11: the availability of effective laws to protect consumer rights, Code12: existence of effective laws to combat cybercrime, Code13: legal environment of Saudi market, Code14: governmental commitment towards e-commerce promotion, Code15: roles of Saudi government in enhancing e-commerce adoption, theme four: market force, Code16: readiness of Saudi retailers to conduct e-commerce, Code17: existing e-shopping websites, Code18: readiness of Saudi consumers to use e-shopping, theme five: supporting industries' e-readiness, Code19: telecommunication services, Code20: technology infrastructures of financial institutions, Code21: banking services, reliability and efficiency of Saudi postal system and services, Code23: governmental roles to enhance supporting industries in order to promote e-commerce application across the country, and a conclusion.

It also includes the following: Analysis of supporting industries' perspective, introduction, model construction and research hypotheses, data analysis strategy and coding, theme one: awareness, Code1: awareness commitment, Code2: using media ads (TV, radio, street banners and newspapers), theme two: social issues and religion, Code3: conflicts between Islamic regulations and e-commerce, Code4: relation between use of e-shopping and cultural aspects, theme three: government e-readiness, Code5: legal environment of Saudi market, Code6: governmental commitment towards e-commerce promotion, Code7: governmental support, theme four: market force, Code8: readiness

of Saudi retailers to conduct e-commerce, Code9: existing e-shopping websites, Code10: readiness of Saudi consumers to use e-shopping, theme five: supporting industries' e-readiness, Code11: telecommunication services, Code12: technology infrastructures of financial institutions, Code13: banking services, Code14: reliability and efficiency of Saudi postal system and services, Code15: governmental roles to enhance supporting industries in order to promote e-commerce application across the country, Code16: supporting industries' roles to enhance e-commerce application across the country, and a conclusion.

Chapter 7:

This chapter consists of a discussion, introduction, research model construction and hypotheses, SMEs' awareness, SMEs' human resources, SMEs' business resources, SMEs' technological resources, SMEs' commitment, SMEs' governance, SMEs market forces e-readiness, government e-readiness, supporting industries' e-readiness, e-commerce adoption level, social factors including culture and religion, and consumer readiness.

Chapter 8:

This chapter offers the research overview, research contribution, limitations, recommendations for future research, and a conclusion.

Chapter 2: Literature Review

2.1. Introduction

Bolton's report (1971) defines a small firm as being independent, managed by the owner and as having a small market share. Various statistical definitions are adopted to define the firm size, such as consideration of the business sector, defining the firm size according to the number of employees, and using the turnover and balance sheet to measure the firm size (Bolton, 1971). Moreover, the European Commission has similar definitions of SMEs, which are illustrated in Table 2.1 below (DTI, 2001).

EC SME Definitions			
Criterion	Micro	Small	Medium
Max. number of employees	9	49	249
Max. annual turnover	-	7 million	40 million euro
Max. annual balance sheet total	-	euro	27 million euro
Max. % owned by one, or jointly by several, enterprise(s) not satisfying the same criteria	-	5 million euro 25%	25%
Footnote: To qualify as an SME, both the employee and the independence criteria must be satisfied as well as either the turnover or the balance sheet total criteria.			

Table 2.1. European Commission definitions of SME (DTI, 2001)

2.2 E-Commerce and E-Business

DTI (2001) defines e-commerce as using an electronic network to simplify, improve, and speed up particular stages of the business process, i.e. the buying, selling, and delivery of goods and services. On the other hand, e-business, derived from the term e-commerce, is the conducting of business on the internet, not only buying and selling but also serving customers and collaborating with business partners. The primary difference between e-commerce and e-business is that e-business also refers to online exchanges of information, for example, a manufacturer allowing its suppliers to monitor production schedules or a financial institution allowing its customers to review their banking, credit card, and mortgage accounts. E-business is a generic term and encompasses the whole

firm with the integration of all electronic processes, from suppliers to consumers (Parazoglou, 2006).

So, the term “e-business”, “e-commerce”, and “internet commerce” are often used interchangeably. In this research, e-business refers to the incorporation of internet technologies into the entire enterprise’s operations and management and beyond. E-commerce refers to essentially online transactions involving buying and selling. M-commerce is an extension of e-commerce transactions—buying, selling, and payments—made using mobile devices.

2.3 Aspects to Consider in Adoption of E-Commerce

There are several critical and non-critical aspects to consider while the adoption of e-commerce by SMEs in Saudi Arabia. Some of these most important factors include technological factors, organisational factors, environmental factors, and individual factors.

2.3.1. Technological factors

Technological factors refer to the adoption of different innovative solutions, especially by utilising different ICT equipment and other important network-related technologies within the given circumstances. These technological factors have a huge role to play in influencing the performance of the organisation. Since most developing countries have issues related to the speed of internet connections, it cannot consider reliable for most organisations due to inadequate information. Although Saudi Arabia is a developed country, it is still reluctant to adopt e-commerce and innovation. This is mainly because the adoption of technology can influence the overall infrastructure of organisations and how SMEs adopt these technological changes within them.

2.3.2. Organisational factors

These factors represent the internal factors of an organisation and how these factors are responsible for influencing the adoption of innovation and technology within the country. Different recent researchers have identified that the adoption and implementation of e-commerce have become increasingly important for improving the network systems in most of the SMEs in Saudi Arabia. Nevertheless, the cost of implementing this technology is high, which results in most organisations being reluctant to adopt this technology.

Moreover, its adoption also requires organisations to upgrade their infrastructure in order to take advantage of e-commerce in SMEs. These organisations require their trade activities and consultation fees to be implemented effectively and that their staff members be trained to get acquainted with the requirements of the innovative technology and the continuous maintenance of their website in order to move with the latest trends in the market.

2.3.3. Environmental factors

These are the factors that influence the activities of an organisation within the given circumstances. These are the external factors that are extremely critical in influencing the performance of the organisation. The government is the key factor in creating influences on the innovative environment of the local SMEs by supporting the policies that the organisation should follow, though with the current trends in the business environment of Saudi Arabia, the government is not very supportive of the changing trends and adopting the innovative trends in the market. This influences the non-tariff barriers in the business environment of Saudi Arabia and creates several severe problems for managing the trade policies effectively based upon the quality of trade governance. By adopting e-commerce in SMEs, the Saudi business sector would be responsible for influencing the competitive pressure within the business industry and supporting the adoption of e-commerce more effectively.

2.3.4. Individual factors

In most SMEs, the managers or the owners of the organisation are responsible for controlling the business activities. These activities are considered to be the individual factors responsible for the adoption of e-commerce within the business sector. This acts as one of the most critical factors responsible for the adoption of innovation within the organisational structure. The successful adoption of e-commerce within SMEs is possible if the owner or the manager possesses the right knowledge, thereby accelerating the adoption of innovation and transforming the corporate goals within the organisation towards developing the organisation in the future. In the case that managers do not welcome these changes, this results in stifling the performance of the organisation. Employees within the organisation also have a significant role to play in the adoption of

the required services that the organisation needs for the adoption of e-commerce. Employees need to be technically skilled in order to influence the adoption of e-commerce in SMEs within the Saudi business sector.

2.4 History of E-Commerce

According to Ariguzo, Mallach, and White (2006), the earliest use of e-commerce was in the sixties with the use of electronic data interchange (EDI), an electronic system to send and receive purchase orders and sales receipts between large enterprises. After that, products and services were added to this concept. Presently, the concept of e-commerce includes a diversity of business uses, such as marketing, selling, buying and even the provision of services by using the internet, which promotes these e-commerce applications according to ICT development.

Furthermore, EDI was used exclusively in business-to-business (B2B) transactions till the early nineties when Hypertext Transfer Protocol (HTTP) and the World Wide Web (WWW) were founded in addition to the widespread availability of personal computers (PCs), which introduced a new concept—that of business to customer (B2C)—to e-commerce (Ariguzo et al., 2006). By the end of the nineties, the internet had been developed further in terms of its commercial uses, especially the B2C model due to several factors, such as the development of e-payment systems, and the availability of better internet browsers, including internet security protocols and the secure sockets layer (SSL) (Mirescu, 2010).

E-commerce has become a key driver in the way companies across the globe conduct business. For SMEs, it is a gateway to global markets and a fast track to overtake rivals and competitors. The internet, along with the latest technology—cloud computing, big data processing architecture, wireless communication, and smart devices—offers great potential for SMEs to create a new business, products, services, and new ways of working. Research into how technology is adopted and what factors affect the adoption has been reported in many studies, and several adoption models have been generated since the 1980s (Davis, Bagozzi, & Warshaw, 1989; Delone & Mclean, 2004; Molla & Licker, 2005a; Rogers, 2003). For e-commerce, it appears that studies on adoption and factors from

consumer perspectives are more prevalent than from organisational perspectives, particularly for SMEs.

SMEs are slow to adopt e-commerce because of their unique characteristics including limited resources, the lack of an IT infrastructure (Lee, 2001; Lee & Xia, 2006; Mak & Johnston, 1999), a small management team, strong owner influence, multifunctional management, limited ability to obtain financing, and a lack of control over the business environment. In addition, SMEs rely on an environment in which structures and processes must remain simple, flexible, and adaptable (Carmichael, Turgoose, Gray, Todd, & Nadin, 2000). Firm and managerial factors merge due to the high locus of control exerted by the key decision makers (Boone, De Brabander, & Hellemans, 2000).

SME's adoption of internet technology is also affected by external factors—government policy, ICT infrastructure, industry, stakeholders, and customer influences (Xu et al., 2006). As a result, the level of adoption by SMEs varies from country to country, region to region, and sector to sector. It tends to be the case that in developed countries, such as the UK and USA, the development and use of e-business are in a sophisticated form with continuous adoption and innovation (Molla & Licker, 2005b), whereas in developing countries, there appear to be obstacles that affect the adoption and implementation of e-commerce (Alam, 2009; Alam et al., 2011; Al-Harby, 2006; Al-Hudhaif & Alkubeyyer, 2011; Al-Qirim, 2010; Kabanda & Brown, 2010; Mbamba, 2006; Molla & Licker, 2005b; Wymer & Regan, 2005; Yu et al., 2010).

2.5 Theoretical Frameworks

Since the first introduction of e-commerce and e-business in the early nineties, several research frameworks have been developed and applied to study e-commerce adoption and diffusion, e.g. diffusion of innovations (DoI), technology acceptance model (TAM), technology-organisation-environment (TOE), and the perceived e-readiness model (PERM). In this section, these theoretical frameworks of e-commerce adoption have been reviewed to help the researcher formulate a research model to achieve the research aim and objectives.

The research carried out by Garín-Muñoz, López, Pérez-Amaral, Herguera, and Valarezo (2019) was to assess the models employed for the individual adoption of e-commerce and e-banking services and their applications in e-government. This paper mainly provided an analysis of the patterns of selected integrated services in which e-government and e-commerce uses were observed. In the exploration, mainly high-quality and official data obtained from a survey concerning the use of equipment and information and communication technology were used.

It is significant to note that 16,209 data sets were used in the cross-sectional analysis of individuals in 2016, and theoretical demand models were considered to be the frameworks which could enhance the maximisation of the framework as the adaptive services. It was moreover determined that logistic regression techniques could be used for the quantification of the impact of socioeconomic characteristics among individuals with respect to the adoption of each service. The models derived as consequences models were regarded as statistically significant because of their higher productive power (Garín-Muñoz, López, Pérez-Amaral, Herguera, & Valarezo, 2019).

Moreover, assessments have provided results that illustrated that level of internet, computation skills, age, and education level of the people were all regarded as crucial for the determination of the scope of e-commerce and e-banking. In this regard, the adoption of any three services in which gender, income, and level of trust are regarded as most significant for the explication of the participation, policies, and recommendations, must be made to highlight the desirability of employing some of the specific measures to differentiate different demographic groups and people belonging to different income strata (Garín-Muñoz et al., 2019).

2.5.1. Theoretical Background

SMEs are mainly slow to adopt e-commerce for several reasons, such as uneducated stakeholders, limited resources, and the lack of an IT infrastructure (Lee & Xia, 2006; Lee, 2001; Mak & Johnston, 1999). These reasons, among others, can affect decision-making related to the adoption of e-commerce. On the other hand, the transformation process towards a complete e-commerce adoption follows specific steps, for example beginning

with using emails, having a website presence, and having complete e-commerce system integration (Levy & Powell, 2004). The success of this transformation highly depends on a number of perspectives in a place to support the transformation process. Moreover, previous studies of IT adoption have mainly considered only one of five different perspectives that affect the diffusion and adoption of new technology.

Weinmann and Gaedke (2009) and Molla and Licker (2005a), along with other studies, have confirmed this earlier consideration in the literature on e-commerce adoption. To display these considerations, the researcher has designed Figure 2., which illustrates the perspectives of previous IT adoption studies and the key issues considered in each one. Each of the first four perspectives has a specific focus area that affects the process of new technology adoption. So, to study the adoption of e-commerce, it is important to find a comprehensive model which must consider all of these aspects to assure the best findings and successful identification. The interactionist perspective is the only one that considers all of these perspectives. Therefore, this one represents the base of Molla and Lickers' perceived e-readiness model (PERM), which was developed to specifically address e-commerce adoption in developing countries (Weinmann & Gaedke, 2009).

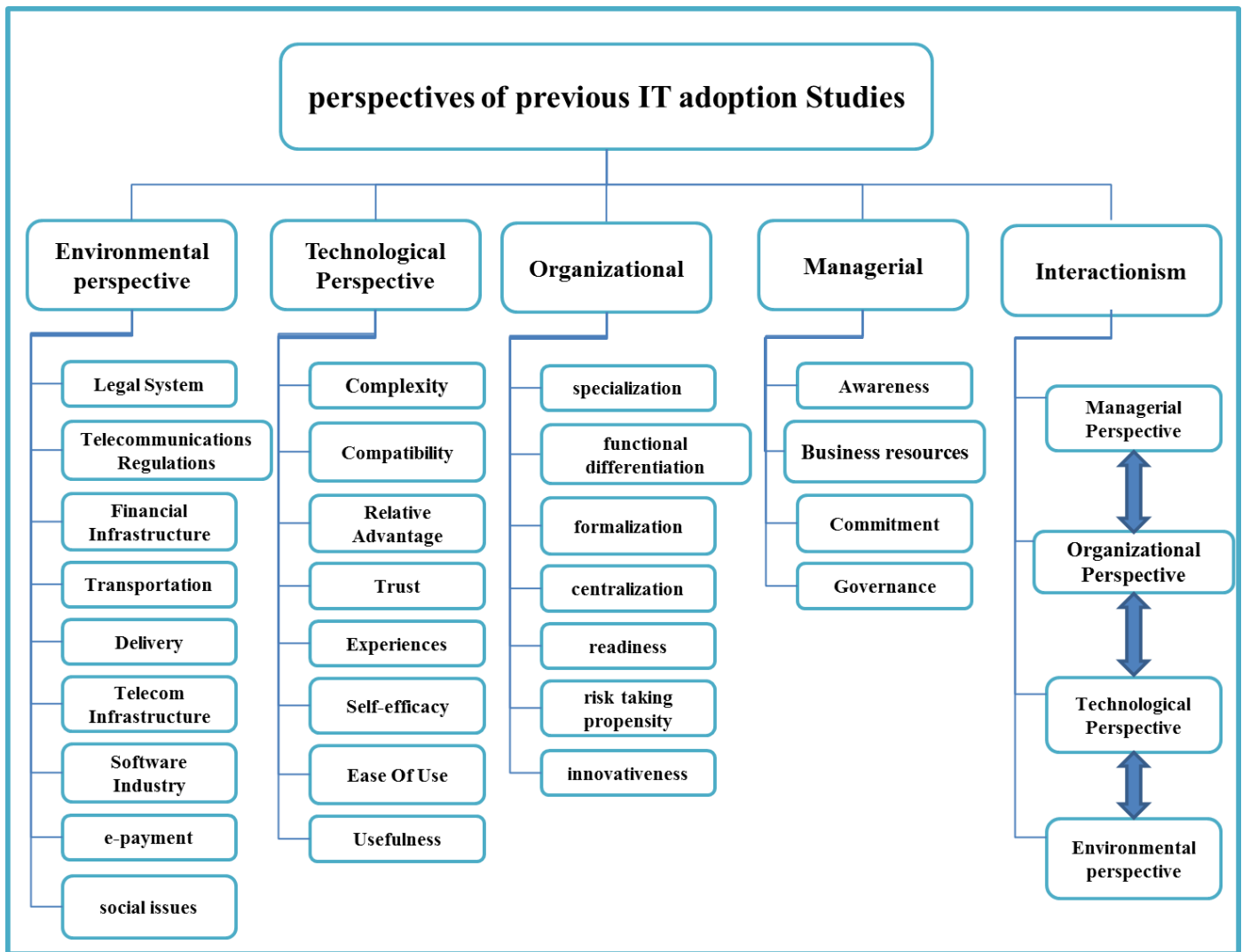


Figure 2.1. Perspectives of previous IT adoption studies and their key issues

2.5.2. Diffusion of innovations (DoI)

The diffusion of innovation theory by (Rogers, 2003) is a theory that aims to explore the way that innovation or technology is adopted by users over time. It is based on how, why, and at what rate new ideas and technology spread through cultures. Rogers (1983, 1995) defined it as “the process by which an innovation is communicated through certain channels over time among the members of a social system”. Rogers further discusses that diffusion is not a single, all-encompassing theory but rather several theoretical perspectives that relate to the overall concept of diffusion. Influence on adoption of an innovation by members of an organisation is seen through these four factors: (1) the innovation itself, (2) the communication channels used to spread information about the

innovation, (3) time, and (4) the nature of the group to which it is introduced. The adoption generally follows an S-curve pattern that includes five categories of individual innovativeness, from the earliest to the latest adopters: innovators, early adopters, early majority, late majority, and laggards, as shown in Figure 2.2.

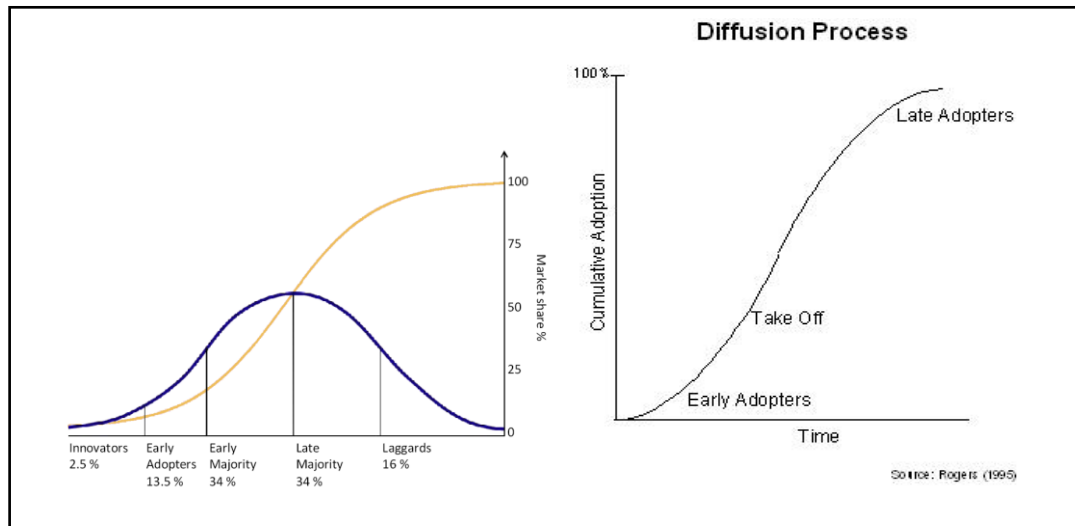


Figure 2.2 Roger's diffusion of innovation curve (1995, 2003)

Rogers (1995) suggests that when the adoption curve is converted to a cumulative percent curve, a characteristic S-curve is generated that represents the rate of adoption of the innovation within the population. The rate of adoption of innovations is impacted by five factors: relative advantage, compatibility, trialability, observability, and complexity. The first four factors are generally positively correlated with the rate of adoption, while the last factor, complexity, is generally negatively correlated with the rate of adoption. The actual rate of adoption is governed by both the rate at which innovation takes off and the rate of later growth. Low-cost innovations may have a rapid take-off, while innovations whose value increases with widespread adoption (network effects) may have faster late-stage growth.

The model of DOI has been widely used as a theoretical framework underpinning research into ICT adoption since the 1990s. Research has found that technical compatibility, technical complexity, and relative advantage (perceived need) are important antecedents to the adoption of innovations (Moore & Benbasat, 1991). The DOI model emphasises the characteristics and differences of individuals in the adoption process but does not explicitly

address other influential factors and forces although Rogers (1995) noted that innovation adoption rates can be impacted by other phenomena. Nevertheless, DOI provides a useful framework to examine owner-managers in SMEs with respect to the perceptions and implementation of technologies, e.g. e-commerce/m-commerce for their business.

This model is more focused on identifying the individual perspective and how a process can help to disperse innovation within the organisation. The concept of innovation diffusion theory is responsible for introducing a new idea and helping the organisation to adopt certain changes. This process of innovation is communicated to the organisational channels and identifies how this innovation can influence change on a larger level. Implementing e-commerce is one of the increasing demands in the business industry. This requires SMEs in Saudi Arabia to adhere to these changes, and through this model of innovation, diffusion can help to disperse change effectively not only within the organisation and also smoothly within society. There is a major requirement to implement changes within organisations in present business market. The process of implementing innovation decisions is vital to the growing trends in the market. This theory of diffusion would help to relate the idea to society and would help to align all the human resources and significantly imply a positive impact on e-commerce. This model can play an important role in understanding the following hypothesis of the study:

H2: Human resources have a significant and positive impact on e-commerce adoption.

H4: Technological resources have a significant and positive impact on e-commerce adoption.

H9: Supporting industries' e-readiness has a significant and positive impact on e-commerce adoption.

2.5.3. Technology acceptance model (TAM)

The technology acceptance model is an information system theory that aims to identify the relationships between perceived usefulness and perceived ease of use, attitude toward usage, and actual usage behaviour (Chuttur, 2009; Davis et al., 1989). Also, it is useful to evaluate the users' acceptance of new technology. This model is an adaption of the theory

of reasoned action (TRA) to the field of information systems (IS). Researchers removed the attitude construct found in TRA from the current specification, thus simplifying it into TAM. Davis, Bagozzi, and Warshaw (1989) suggested that when users are presented with new technology, several factors influence their decision about how and when they will use it, notably perceived usefulness (PU), which is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance”. Perceived ease of use (PEOU) is defined as “the degree to which a person believes that using a particular system would be free from effort”. Both PU and PEOU affect the user’s behaviour intention and hence result in different extents of using the new technology. The model is shown below.

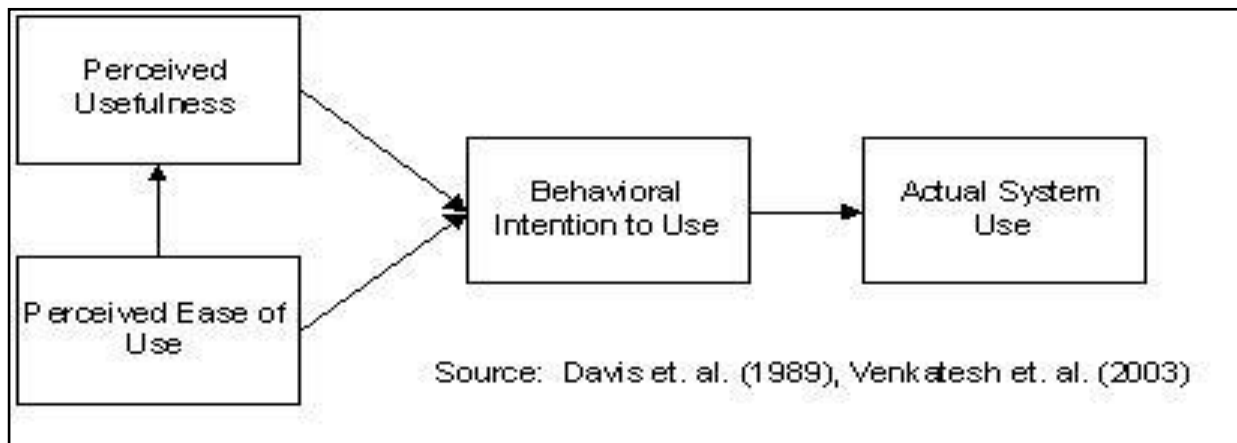


Figure 2.3 Technology acceptance model (TAM)

Like DOI, TAM is also a user-focused technology adoption model. Researchers have developed the TAM model into various versions that incorporate other influential factors, for instance, the unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003) that includes performance expectancy, effort expectancy, social influence, and facilitating conditions as influential variables.

The technology acceptance model can play a vital role in understanding the psychological and sociological factors and how these factors are important in bringing a larger change within the organisational structure. This model is important in evaluating the conceptual and empirical similarities and how it helps in the adoption of technological changes within the organisation, thereby influencing technological change in the organisation. Although

this model would not be responsible for capturing all the strategies for e-commerce within the organisation, it is an important model that helps the organisation in identifying factors like internet experience of the users, the normative conviction among people, and online shopping experience among the people. This model relates to testing the following hypotheses of the study:

H1: SME awareness of e-commerce has a significant and positive impact on e-commerce adoption.

H7: Market forces' e-readiness has a significant and positive impact on e-commerce adoption.

H10: Social factors, including culture, language, and religion, have a significant and positive impact on e-commerce adoption.

H11: Consumer awareness of e-commerce has a significant and positive impact on e-commerce adoption

2.5.4. Technology-organisation-environment (TOE)

Technology-organisation-environment (TOE) by Tornatzky and Fleischer (1990) is a theoretical framework that considers three organisational aspects in order to evaluate their influence on the adoption and implementation of new technology. TOE contributes to the understanding of technology adoption by considering possible influences and effects on the technological context, organisational context, and environmental content. This distinguishes it from the previous DOI and TAM models where users are the centre of the inquiry. The technological context includes internal and external technologies that affect the adoption. Organisational context refers to the characteristics and resources of the firm, including firm size, degree of centralisation, degree of formalisation, managerial structure, human resources, amount of slack resources, and linkages among employees. The environmental context includes the size and structure of the industry, the firm's competitors, the macroeconomic conditions, and the regulatory environment (Tornatzky & Fleischer, 1990). Figure 2.4 depicts the TOE model.

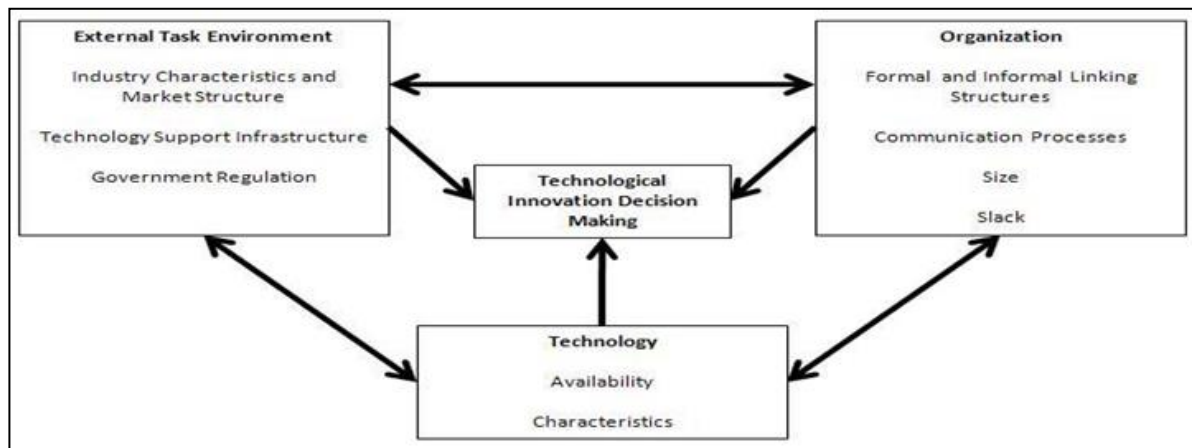


Figure 2.4 Technology-organisation-environment model (TOE)

This model is highly focused on the environmental context. It has the potential to play a vital role in allowing SMEs to adopt e-commerce in their structure in Saudi Arabia. This framework is highly applicable to the successful productivity of an organisation with respect to e-commerce and technology in SMEs. This model can also support the organisation in shaping its operations by adopting the complexities of the environment and adapting them according to the change within society. This model would have a strong impact on the sustaining innovation in the organisation. SMEs would be in a better position to perceive an innovation which is consistent with various past experiences of the organisations. This model also plays an important role in supporting the top management and devising the right strategies by reflecting upon the level of information and its intensity with respect to the products or services influenced by innovation, especially e-commerce in SMEs. This model could thus play a vital role in supporting the following hypothesis of the study:

H3: Business resources have a significant and positive impact on the adoption of e-commerce.

2.5.5. Perceived e-readiness model (PERM)

Molla and Licker (2005a) defined the PERM model as “an organisation’s assessment of the e-commerce, managerial, organisational, and external situations in making decisions about adopting e-commerce”. As far as e-business adoption is concerned, in addition to the aforementioned e-adoption ladder, Molla and Licker (2005a, p. 879) developed the PERM, which combines both adoption level and factors influencing the level of adoption.

The model is said to be “an organisation’s assessment of the e-commerce, managerial, organisational, and external situations in making decisions about adopting e-commerce” (Figure 2.5).

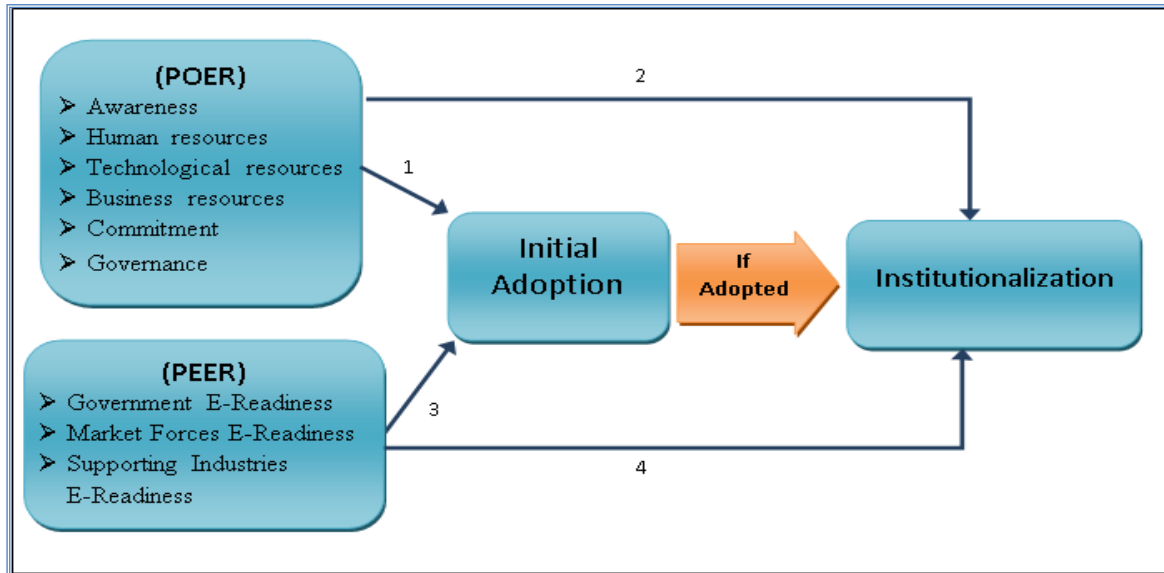


Figure 2.5 Perceived E-readiness model (Molla & Licker, 2005b)

Given that there is a lack of suitable models and measures available to study e-business adoption specifically in developing countries, Molla and Licker (2005a) conceptualise e-readiness as a significant measure to understand the level of e-business adoption, which consists of several perspectives including management, organisation, technology, and environment. A set of measurements for e-readiness was developed and validated in their subsequent study. In the PERM, factors are categorised into two perspectives: (1) perceived organisational e-readiness (POER) and (2) perceived environmental e-readiness (PEER). The level of e-commerce adoption is measured by initial adoption to institutionalisation, representing the degree of adoption from basic internet presence to a completely integrated e-commerce system.

More specifically, POER has six components that can test an organisation’s e-readiness:

- Awareness: explores the understanding of e-commerce technology, business models, requirements, advantages, and risks of e-commerce. This has been referred

to as perceived benefits (Kurnia, Alzougool, Ali, & Alhashmi, 2009) or relative advantages (Fellow & Crito, 2004).

- Human resources: the availability of experienced employees of information technologies, business strategy, and marketing companies which are important when starting any e-commerce adoption initiatives (Molla & Licker, 2005a; Tan et al., 2007).
- Business resources: several organisational capabilities such as communication openness, risk-taking behaviour, business relationships, and financial resources.
- Technological resources: availability and capability of ICT and the extent of computerisation, systems flexibility, and experiences of networked applications.
- Commitment: organisational intention and support for e-commerce adoption from all levels of the organisation particularly from top-level management.
- Governance: the strategic, tactical, and operational model and process that govern their business activities and e-commerce initiatives.

PEER is mainly concerned with the external environment for e-business adoption:

- Market forces' e-readiness: business partners such as customers and suppliers and their intention to conduct the e-commerce of the business.
- Government e-readiness: the preparation of strategies, policies, and legislation to encourage, support, facilitate, and standardise e-commerce.
- Supporting industries' e-readiness: the country's ICT infrastructure, presence, development, service level, and cost structure of supporting partners, such as telecommunications, financial, trust enablers, and the IT industry.

Although the e-readiness model only measures the perception of stakeholders, the factors considered in the model can be measured by factorial data if they are available, for example, the readiness of ICT infrastructure can be measured by the actual systems implemented at national, regional, and corporate levels. The PERM model has been widely used by many researchers studying e-business adoption (Mbamba, 2006; Rowe, Truex, & Huynh, 2012; Tan et al., 2007; Yu et al., 2010; Zhou & Matin, 2008). PERM tends to be comprehensive, and the measures developed are useful to adapt; hence, the PERM model has been adopted for the current research conducted in Saudi Arabia.

The root of this model has been influenced by the interactionist model, which works on the multiperspective assessment of various organisational factors including the managerial assessment, internal organisational assessment, and various external contextual factors responsible for providing a meaningful structure to the e-commerce adoption. This model comprises both internal and external factors that influence the adoption of e-commerce in an organisation. Most of the internal factors are perceived as the commitment to and organisational perception of the adaptation of e-commerce, while the external factors refer to the environmental factors including the market as a driving force, government, industries influencing the adoption of e-commerce among SMEs, and their willingness to support e-commerce. It would, however, not be wrong to say that there are several limitations attached to this model, especially when it comes to the reliability and validity tests conducted over the SMEs in Saudi Arabia. Secondly, the industry descriptors also act as a major factor, including the size of the firm, sector of the industry, and the educational background of the employees supporting the adoption of e-commerce and how the PERM model plays its role in a smooth transition. This model relates to the following hypotheses:

H5: Commitment has a significant and positive impact on e-commerce adoption.

H6: Governance has a significant and positive impact on e-commerce adoption.

H8: Government e-readiness has a significant and positive impact on e-commerce adoption.

PERM is linked to stakeholder theory in that it considers the perspective of the internal and external stakeholders regarding the readiness of the company for e-commerce. Stakeholder theory states that the internal stakeholders may have a different interest compared to the other stakeholders of the company, especially the labour. As per this theory, the company is responsible for fulfilling the needs and requirements of every stakeholder associated with the company. This depends on the performance of the company while considering its PERM (Hillman, Cannella, & Paetzold, 2000).

The internal stakeholders can impact the decision-making processes in the company. This gives rise to issues of conflict of interest in the company. Since PERM advocates changes

in the organisation at the molecular level, conflicts of interest can easily happen. Internal stakeholders, including the board of directors, executive management, and managers, are liable to make decisions for their own benefit. Stakeholder theory accompanied by agency theory not only limits the interest of the board of directors to the salaries, perks, and decision-making process but to the ultimate interests based on the loyalty and self-interest of the internal stakeholders (Darskuvienė, 2014). Concerns from the internal stakeholders consist of issues like conflicts of interest in terms of the services and the decision-making process. In Saudi Arabia, directors are the executive part of an organisation. They protect the interests of the other shareholders while valuing their own shares. To implement e-commerce in a company, the executive role of the directors is considered of crucial importance in determining the decision-making process of the company. The financial gains and expectations of the right gains in the investments made in the company are the few interests to shortlist according to the perspective of the board of directors when implementing PERM (Reed, 1999).

Stakeholder influence on PERM	Purpose	Concept
Stakeholder influence can be based on the strategies used to influence the decision-making of the company with respect to adapting e-commerce changes.	To elaborate and analyse the stakeholder strategic aims for the implementation of e-commerce	Resource dependence based on the external environmental effects on the stance of the board of directors about the future of the company. Neo-institutional theory reflects on certain practices that are carried out in the company due to the external pressures (Herold, 2018).
Stakeholder influence can be based on the models while assessing PERM.	To create a model or the scenarios in which the stakeholders can effectively carry out the actions to influence the organisation's decision.	Salience and identification model are based on the power, legitimacy, and urgency which allow the board of directors to use their legitimate power in their interest rather than in the interest of the whole organisation (Davila, 2017).

Table 2.2. PERM and stakeholder influence

2.5.6. Appropriateness of PERM to the proposed study

To explore the extent to which PERM has been successful in similar studies, 32 academic papers that either adopted the complete model of PERM or some parts were critically reviewed and categorised according to the country in which they were conducted, starting with the country most similar and best matched to Saudi Arabia. These included the United

Arab Emirates, Kuwait, and Jordan. From the results, there was strong evidence to adopt PERM in this study. Nevertheless, due to minor shortfalls of this model that have been recognised in previous studies (AbouSaber, 2007; Al-Harby, 2006; Aleid, 2011; Aleid et al., 2010; Choudhury & Al-Sakran, 2001; Kurdi, 2008; Sait et al., 2004; Sohail et al., 2008; Zainul, Osman, & Mazlan, 2004), e.g. delivery, culture, and religious issues, an appropriate revision and alignment was applied to the model to match the case of Saudi Arabia. This modification includes consideration of the different points of view of the different groups involved in the case, such as individual consumers, governmental departments, and supporting industries. Also, consideration is given to several newly recognised factors, such as social, religious, and delivery factors.

2.6 Exploratory Study

To test the PERM factors and their appropriateness to the case of Saudi Arabia and to initially identify the potential factors that may affect SMEs' adoption of e-commerce in Saudi Arabia, the author designed and conducted a qualitative exploratory study to collect the required data by using a semi-structured interview survey (Appendix 3). The study included SME managers and stakeholders. An interview sample of 19 managers and stakeholders from various business sectors was randomly selected. Ethics approval was obtained from the Ethics Committee at the University of Portsmouth. The collected data was summarised and organised in transcript format, and the answers were categorised, grouped, and coded before writing a narrative report. The results confirmed the appropriateness of PERM to the case of Saudi Arabia and indicated several other new factors that affect the adoption of e-commerce in Saudi Arabia, in particular, delivery issues, e-banking, education, culture, and religious issues.

The exploratory study was conducted to first test the factors of the PERM of e-commerce adoption, as designed by Molla and Licker (2005a), and their appropriateness to the case of Saudi Arabia. Second, it was conducted to initially identify the potential factors that may affect SMEs' adoption of e-commerce in Saudi Arabia. Therefore, qualitative interviews were designed and conducted to collect the required data, using a semi-structured interview survey. Sixteen decision makers from a random sample of Saudi SMEs were interviewed. Collected data were qualitatively analysed. The results confirmed the

appropriateness of the majority of PERM factors to the case of Saudi Arabia, while few factors were rejected, such as human resources readiness and business resources readiness. Also, the results indicated several other new factors that affect the adoption of e-commerce in Saudi Arabia in particular, such as delivery issues, e-banking, education, culture, and religious issues.

2.6.1. Delivery issues

Several participants stressed that one of the most important obstacles to e-commerce adoption in Saudi Arabia is the shortage of a nationwide postal system caused by the absence of a post-code system in the country. Also, participants indicated that Saudi society does not trust the national postal service.

2.6.2. E-banking

The banking sector of Saudi Arabia is considered one of the most developed banking sectors in the Arab world; however, some participants indicated that Saudi banks do not provide SMEs with appropriate services that could enhance their adoption of e-commerce, such as e-payments and online credit cards. They added that when these services are provided, the cost and deposit required are too high.

2.6.3. Education

Several participants indicated that Saudi society needs to educate about internet use and e-commerce to enhance their adoption. An interesting point about the education system of Saudi Arabia is that there is no computer curriculum or computer studies at elementary or intermediate school. Computer studies are offered at boys' secondary schools only, whereas Saudi girls do not receive any computer studies.

2.6.4. Culture and religious issues

The results of the pilot study indicated that to some extent, e-commerce adoption is affected by Saudi religious law and culture, e.g. band credit with interest, preference of physical shopping, and using the Arabic language only.

2.7 Factors Affecting E-commerce Adoption in Saudi Arabia

Studies Conducted on e-commerce adoption in Saudi Arabia have shown that the e-readiness of consumers, business partners, supporting industries, and the government are the most important enablers of e-commerce adoption in the country (Abed, Dwivedi, & Williams, 2015). Moreover, some other studies in Saudi Arabia found that banking and online payment, legislation, ICT infrastructure, awareness, privacy, and trust are the most frequent e-commerce inhibitors in Saudi Arabia (AlGhamdi, Drew, & AlFaraj, 2011; Basahel & Khoualdi, 2015). One of the major obstacles encountered in this literature review is the lack of similar studies in developing countries and Saudi Arabia in particular (Abed et al., 2015; Al-Gahtani et al., 2007; Al-Hudhaif & Alkubeyyer, 2011; Al-Mowalad, 2012; Al-Somali et al., 2011). However, the researcher has identified an adequate number of studies for this literature review and identifies each study and notes each study's salient facts. The following subsections present these findings in order to develop the main research constructs and hypothesis.

Another research was specifically conducted to determine the influencing factors regarded as imperative for the adoption of e-commerce. This research, carried out by Alqahtani in 2016, and the interventions of the computer and internet were the background to this research, as these elements have revolutionised communication for all people, their working methodology, and roles in the modern world as well. These are the assessments in which merely computers have not exclusively played their role but also other technological devices, such as virtual space on internet platforms (Alqahtani, 2016).

The results show that shopping transactions have grown to a great extent online, but Saudi Arabia is lagging in this regard, as it is one of the leading oil-producing countries and therefore, concerns exist in the country related to why a wealthy country is not able to appropriately adapt systematic changes related to the low levels of online retail adoption and e-commerce. The exploration of reasons is clear for this low up-take, as a comprehensive and coherent approach is lacking within the country from the perspective of both businesses and adopters (Alqahtani, 2016).

	Resource	Perspective	Theoretical Model	Research Methodology	Data Analysis	factors codes of Findings
1	(Al-Somali et al., 2010)	organisations	TOE	quantitative	Structural equation modelling, confirmatory factor analysis	A1, A2, A4, A5, A7, A8, A9, A10
2	(Al-Hudhaif & Alkubeyyer, 2011)	Large Organisations B2B	PERM	quantitative	Discriminant Function Analysis	A1, A2, A3, A4, A5, A6, A7, A8, A9, A10
3	(Al-Somali et al., 2011)	Organisations	contingency framework	quantitative	Structural equation modelling,	A4, A5, A7, A8, A9
4	(Al-Harby, 2006)	consumers	N/A	qualitative	qualitative data analysis	A2, A8, A9, A11, A12
5	(AbouSaber, 2007)	Internet users & SMEs	N/A	quantitative	demographic analysis	A8, A9, A10, A11
6	(Sait et al., 2004)	Saudi society	Theory of Planned Behaviour, Diffusion of Innovations	quantitative	consequence analysis + Linear Regression Analysis	A8, A10, A11
7	(Kurdi, 2008)	users' viewpoint	N/A	quantitative	demographic analysis, descriptive statistics, One-Way ANOVA, correlations analysis	A12, A7, A8, A11
8	(Sohail et al., 2008)	consumers	contingency framework	quantitative	Linear Regression Analysis	A12, A8, A11
9	(Aleid et al., 2010)	consumers	N/A	Qualitative	qualitative data analysis	A1, A2, A7, A8, A9, A11, A12
10	(Al-Maghrabi et al., 2011)	consumers	Revised technology acceptance model	Quantitative; online survey	structural equation model	A1, A8, A12
11	(Almoawi & Mahmood, 2011)	SMEs	OTE	quantitative	Construct validity, Principal component analysis	A1, A2, A3, A4, A5, A6, A7
Factors coding scheme						
A1 = SMEs' Awareness A2 = Human resources A3 = Business resources		A4 = Technological resources A5 = Commitment A6 = Governance		A7 = Market forces eReadiness A8 = Government eReadiness A9 = Supporting industries eReadiness		A10 = e-commerce adoption status A11 = Social factors including culture and religion A12 = Consumer Awareness

Table 2.3. Studies of e-business adoption in Saudi Arabia

2.7.1. SMEs' awareness

Perceived benefits, relative advantages, and awareness are various terms employed when considering a definition of the perception of e-commerce inside the organisation. In other words, it aims to explore the understanding of e-commerce technology, business models, and the requirements, advantages, and risks of e-commerce (Al-Hudhaif & Alkubeyyer, 2011; Molla & Licker, 2005a; Tan et al., 2007). SMEs lack sufficient knowledge of the potential benefits of e-commerce for their businesses (Aleid, 2011; AlGhamdi et al., 2011; Basahel & Khoualdi, 2015).

2.7.2. Human resources

The human resources factor means looking at the availability of employees experienced in information technologies, business strategies, and marketing, which are important to start any e-commerce adoption initiatives (Molla & Licker, 2005a; Tan et al., 2007). Several studies in the Saudi literature indicated that human resources at Saudi companies do not support the transformation to e-business and e-commerce (Al-Harby, 2006; Al-Hudhaif & Alkubeyyer, 2011; Al-Somali et al., 2010; Aleid et al., 2010; Almoawi & Mahmood, 2011).

2.7.3. Business resources

The business resources component looks at several organisational capabilities, such as communication openness, risk-taking behaviour, business relationships, and financial resources (Molla & Licker, 2005a; Tan et al., 2007). Several studies in the Saudi literature revealed that business resources at Saudi companies do not support the transformation to e-business and e-commerce (Al-Hudhaif & Alkubeyyer, 2011; Aleid, 2011; Almoawi & Mahmood, 2011).

2.7.4. Technological resources

The technological resources factor looks at the base ICT and evaluates the extent of computerisation, systems flexibility, and experience with networked applications (Al-Hudhaif & Alkubeyyer, 2011; Byrd & Turner, 2001; Molla & Licker, 2005a; Tan et al., 2007). Companies' technological readiness is one of the most important factors affecting new technology adoption (Cragg & King, 1993; Harrison, Mykytyn, & Riemenschneider, 1997; Iacovou, Benbasat, & Dexter, 1995; Scupola, 2003; Wang & Shi, 2009; Ye & Gong-min, 2007). According to Al-Somali (2012), "IT readiness can positively impact the non-interactive adoption, interactive adoption, and stabilisation of e-commerce".

2.7.5. Commitment

Commitment shows the organisational intention and support for e-commerce adoption from all levels of the organisation, particularly from strategic management (Molla & Licker, 2005a; Tan et al., 2007). To enhance any new technology adoption, SMEs must have a good managerial commitment to promoting and facilitating the transformation to new technology and to dealing with any unexpected change inhibitors that they may encounter

in their adoption process (Agarwal & Prasad, 1997; Chatterjee, Grewal, & Sambamurthy, 2002). Previous studies of e-commerce adoption in Saudi Arabia found that Saudi companies are in need of better managerial commitment to promoting e-commerce adoption initiatives (Al-Hudhaif & Alkubeyyer, 2011; Almoawi & Mahmood, 2011; Al-Somali et al., 2010, 2011).

2.7.6. Governance

Governance consists of the strategic, tactical, and operational model organisations established to govern business activities and e-commerce initiatives (Molla & Licker, 2005a; Tan et al., 2007). Thus, to get the benefits of e-commerce, Saudi SMEs should consider having good managerial governance of e-commerce initiatives (Al-Hudhaif & Alkubeyyer, 2011; Almoawi & Mahmood, 2011).

2.7.7. Market forces' e-readiness

This aspect looks at business partners, such as suppliers, and their intention to conduct e-commerce with the business (Molla & Licker, 2005a; Tan et al., 2007). An important finding is that business partners and suppliers believe that required e-commerce supports are costly compared to the expected business rewards they may get by offering them in Saudi Arabia. So, they do not have any plans to invest in such services yet (Al-Hudhaif & Alkubeyyer, 2011; Aleid, 2011; Aleid et al., 2010; Almoawi & Mahmood, 2011; Al-Somali et al., 2010, 2011; Kurdi, 2008).

2.7.8. Government e-readiness

Government e-readiness looks at the country's level of preparation to encourage, support, facilitate, and standardise e-commerce initiatives (Molla & Licker, 2005a; Tan et al., 2007). According to Aladwani (2003), some of the factors impacting e-commerce in the Middle East are security, legal regulations, and privacy. Also, the most serious inhibitors to e-commerce adoption in Saudi Arabia are security concerns, legal regulations, consumer privacy, and business reputation. Another finding by AlGhamdi et al. (2011) argued that governmental support is the most impactful factor on e-commerce development in Saudi Arabia. Moreover, Saudi companies need governmental support to promote e-commerce adoption countrywide in several ways, i.e. regulation, legislation, education, and

infrastructure for secure payment and delivery. Aleid (2011) claimed that "the government is considered responsible for most of the previous categories. E-commerce requires an appropriate environment that is composed of telecommunication and Internet infrastructures, law, finance, technical, delivery, awareness and security issues. All these categories relate to government responsibilities".

2.7.9. Supporting industries' e-readiness

This factor looks at the country's ICT infrastructure, presence, development, service level and the cost structure of supporting partners, such as telecommunications, financial, trust enablers, and the IT industry (Al-Hudhaif & Alkubeyyer, 2011; Molla & Licker, 2005a; Tan et al., 2007). Previous studies in Saudi Arabia have mentioned several weaknesses in this regard, i.e. internet and broadband subscription and installation fees are very high in Saudi Arabia compared to neighbouring countries. Also, there is the issue of limited availability of ICT services in rural areas in addition to the lack of ICT experts, especially in information security. Another weakness that has been found is that Saudi banks do not allow debit cards to be used online or online credit refunds. One more finding related to supporting industries is an obvious shortage in the mail infrastructure and services, e.g. the address system, high cost, and service reliability (AbouSaber, 2007; Al-Hudhaif & Alkubeyyer, 2011; Aleid, 2011; Aleid et al., 2010; Al-Somali et al., 2010; Sait et al., 2004).

2.7.10. Social factors including culture and religion

Saudi culture and Islamic religion seem to be two of the most critical factors preventing the growth of e-commerce adoption in Saudi Arabia. For example, Islamic regulations prohibit credit interest (Riba) (AbouSaber, 2007; Al-Harby, 2006; Aleid et al., 2010; Choudhury & Al-Sakran, 2001; Kurdi, 2008; Sait et al., 2004; Sohail et al., 2008; Zainul et al., 2004). According to an official report by the Saudi Communications and Information Technology Commission, "credit cards suffer from low adoption in the Kingdom and, therefore, harm e-commerce adoption" (CITC, 2010). Some other social issues that may reduce e-commerce adoption in Saudi Arabia are knowing the English language, resistance to change the lifestyle, and trust and privacy concerns (Aleid, 2011; Thanasankit, 2003; Vatanasakdakul, Tibben, & Cooper, 2004; Zainul et al., 2004).

2.7.11. Consumer awareness

Consumer awareness concerns consumer e-readiness, including their e-skills, intention, trust, culture, and perceived ease of use. However, many studies have been conducted in Saudi Arabia claiming that Saudi consumers are not ready to use e-shopping (Aleid, 2011; Al-Gahtani et al., 2007; AlGhamdi & Drew, 2012; Aljarboa, 2016). A research conducted by Al-Harby (2006) argued that from a consumer point of view, Saudi consumers are ready to conduct e-shopping: "The Saudi citizens looked at E-commerce positively. Their attitude and views toward E-commerce were positive so that they found that E-commerce would be an opportunity rather than a challenge or even a threat for Saudi society" (Al-Harby, 2006).

2.8 Gaps in the Research Literature

From the literature review, several research gaps were found. First, regarding e-commerce adoption in Saudi Arabia, especially the B2C business of SMEs, the findings showed that there is no comprehensive study covering the five perspectives previously mentioned. Also, there is a great lack of IT adoption literature on developing countries, and on Saudi Arabia in particular. Another research gap concerns PERM; it was first introduced in 2005, and only one study by Al-Hudhaif and Alkubeyer (2011) was found that had adopted the complete model to address e-commerce adoption in B2B large business. It has also been observed that there are several gaps related to the penetration of the internet and which influence several opportunities for SMEs. The previous literature lacks an overview of how e-commerce development has positively influenced the adoption of e-commerce. The research also lacks an emphasis on different barriers that SMEs are facing in Saudi Arabia in adopting the innovation. The internet penetration rate is one of the major issues, especially with respect to cross-border trade activities, making international payments, taxation, the security of transactions, ensuring consumer protection, and also dealing with different legal issues.

2.9 Conclusion

Even though e-commerce has greatly influenced the business sector across the world, it still lacks detailed information about goods and services, price comparisons, and fast deliveries through the easy adoption of different business activities. Gaps are also

observed with respect to the considerable obstacles experienced by consumers and the business sector, which aspires to e-commerce reaching consumers in its full potential even though e-commerce between companies representing B2B marketing influences how these companies value transactions between organisations. Several extensive barriers are faced by organisations, especially in the Saudi Arabian economy. This lack of application of PERM is viewed as a significant stimulus for the researcher to extend PERM to the case of the B2C business of SMEs in Saudi Arabia.

Chapter 3: Research Hypotheses and Model Construction

3.1 Research Hypotheses and Model Construction

From the results of the exploratory study, the literature review, and the PERM theoretical model, a clear picture of the research hypotheses and proposed research model was identified (Figure 3.2 proposed research model). Each of the twelve measurable hypotheses has several related questions and was designed using a Likert-style scale to test them [see Appendix 2 for example questions from Molla & Licker (2005a)]. Due to space limitations, only the final form of these hypotheses are stated here:

H1: SME awareness of e-commerce has a significant and positive impact on e-commerce adoption.

H2: Human resources have a significant and positive impact on e-commerce adoption.

H3: Business resources have a significant and positive impact on e-commerce adoption.

H4: Technological resources have a significant and positive impact on e-commerce adoption.

H5: Commitment has a significant and positive impact on e-commerce adoption.

H6: Governance has a significant and positive impact on e-commerce adoption.

H7: Market forces' e-readiness has a significant and positive impact on e-commerce adoption.

H8: Government e-readiness has a significant and positive impact on e-commerce adoption.

H9: Supporting industries' e-readiness has a significant and positive impact on e-commerce adoption.

H10: Social factors, including culture, language, and religion, have a significant and positive impact on e-commerce adoption.

H11: Consumer awareness of e-commerce has a significant and positive impact on e-commerce adoption.

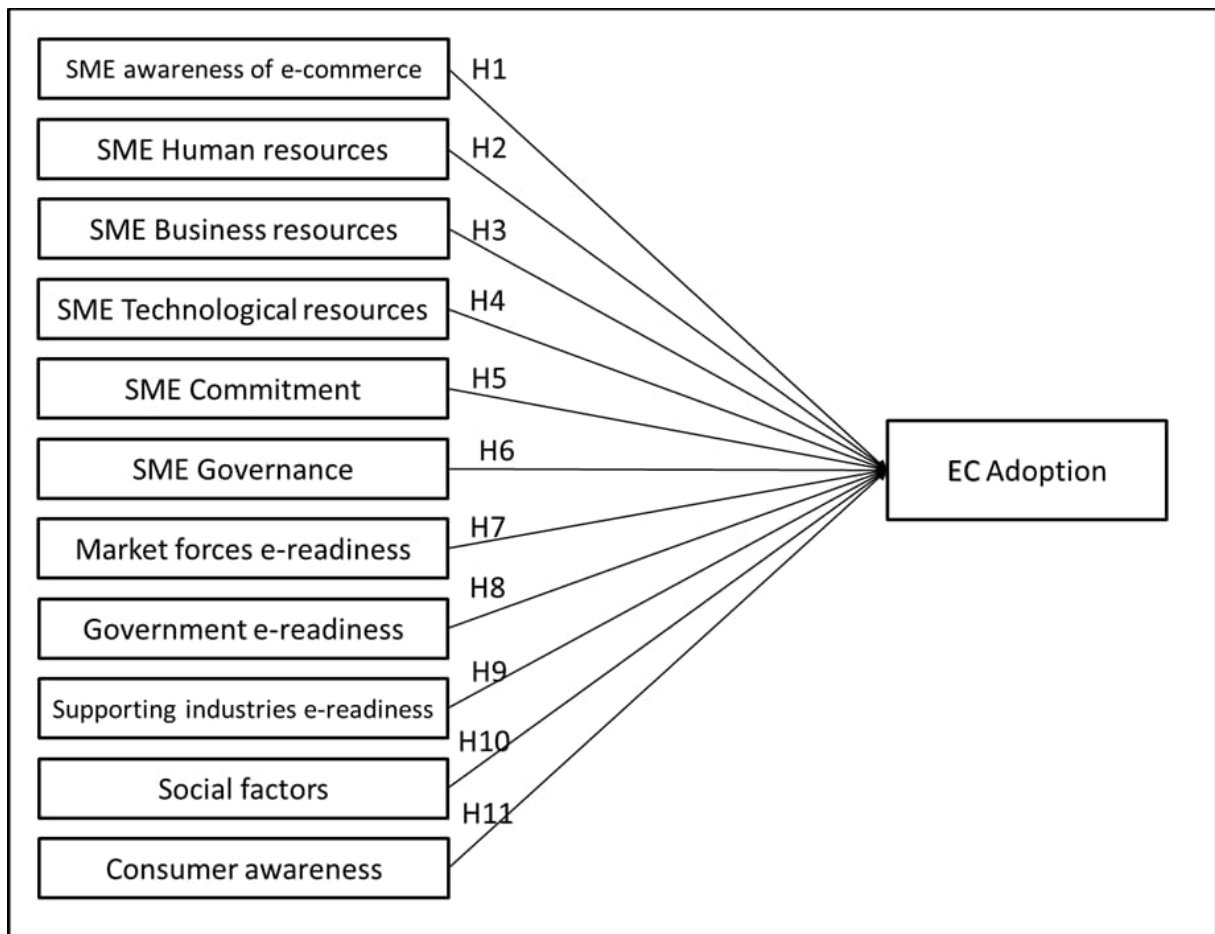


Figure 3.6. Proposed research model

Also, the usefulness of a research project depends on the overall quality of the data collected and analysed, based on the design (Aaker, Kumar, & Day, 2008). This means that the stage of data collection is considered to be the most important step in conducting research, which either leads to achieving the goals of the research or fails to achieve these goals. Moreover, because of the qualitative information required and the small population size, a semi-structured one-to-one interview was the best choice (Reis & Judd, 2000). There were two reasons for this: the first being that a face-to-face interview allows the researcher to know the interviewee's feelings, thoughts, and opinions, and second it was viable to cover an appropriate number of interviewees representative of the population (Beatty, 1995). Moreover, the author has designed a set of 16 open-ended questions that were answered by interviewees.

On the other hand, when the interviews were conducted, there were a few aspects that the author took into consideration. First, the researcher prepared the question schedule. Second, the researcher designed an appropriate schedule for the interviews, which included the time, location and confirmation from the Ethics Committees at the University of Portsmouth and the Saudi Cultural Bureau of London, the governmental sponsor of this research project. Participants' acceptance was requested by sending interview requests to selected decision makers in Saudi SMEs. Third, the interview contained an appropriate introduction to the researcher and the research aims. An appropriate recording method was used in the interviews, and participants were informed about this. Notes were taken from the interviewees' answers. While conducting the interview, the following issues were considered by the interviewer: gentleness, respect, sensitivity, and openness. Also, ethical issues were considered by the researcher, including guaranteeing the interviewees' anonymity and privacy, seeking their consent, and avoiding asking personal details. The interviewer has avoided subjectivity as well. The interview questions have been tested before being used to ensure clarity.

3.2 The Link Between Hypothesis and the Model

Hypothesis 1: SME awareness of e-commerce has a significant and positive impact on e-commerce adoption.

SMEs need more awareness in terms of e-commerce adaption and how it will impact their business overall. Customer management, operational management, and change management in a traditional SME will be impacted by the integration of e-commerce. Certain measures are too explicated and are possible to rely upon. The compatibility of the SME, the relative advantage obtained from the e-commerce adaptation, and the task autonomy are a few factors that have to be propagated throughout the entire organisation to increase awareness (Sarkar, 2008).

The base of operations for the e-commerce platform is quite large. This is one of the basic reasons why the factors which are essential to execute the routine tasks in an organisation are addressed according to the employee base and the requisites established by them. SMEs need clear-cut awareness regarding the adoption of e-commerce for their day-to-day operations. The requisites of SMEs are considered essential to the base of operations, and their measure requires due consideration (Kaur, 2016).

E-commerce plays an important role in influencing SMEs and all the stakeholders in the organisation. E-Commerce provides a more accessible means for supporting the business environment. Since SMEs are performing at a smaller scale, they tend to transform according to the performance of the organisation. This would support the organisation in adopting the changing trends within the business industry. The organisation will need proper awareness regarding change management in the adoption of e-commerce. The compatibility and complexity of the e-commerce platform have to be addressed before adoption, and SMEs need to identify the concept of e-commerce. The factors and framework under consideration are as follows:



Figure 3.7. SMEs' awareness model for e-commerce

Web EC empowers new information-gathering techniques, for example, intranets, extranets, client information disclosure calculations, web arachnids, treats, online enrolment and buying, and symbol-populated virtual public exhibitions, to give some examples. These systems produce immense measures of information, yet it is suggested that a lot of it is futile without versatile strategies to gather, dissect, process, and understand it.

Hypothesis 2: Human resources have a positive impact on e-commerce adaptation.

There are many advantages to e-commerce adaption at the human resources level. These are the measurements granted in the modification of products and services and represent issues to be addressed in the course of marketing evaluations. The following are measures which came to light in the course of assessing advantages.

- If proper management of human resources is tailored, it will cater to better opportunities and productivity at work, which will be in accordance with the needs of the organisation and its goals, which are under observation.
- The collection of data and storage will be done efficiently by human resources.
- There will be consideration of the spectrum of recommendations, and outreach will be established for human resources.
- Human resources support will be established, and answers to any queries will be made possible.
- Human resources will be provided with more opportunities in the workplace while enhancing their productivity at work
- Electronic ERM in e-commerce brings cost-cutting yet effective customer interaction services for the employees.

The assessment of the disadvantages showed that the greatest issues are associated with cost and the lack of jobs. Human resources are cost-effective and assume an expansive role. A lack of this, which observed in business culture, is another disadvantage along with the lack of compliance shown through resistance. A lack of leadership is another issue assessed as a disadvantage, which is apparent at times. This usually happens when there is a deficit in leadership (Shih, 2016).

Hypothesis 3: Business resources have a significant and positive impact on e-commerce adoption.

Business resources like sales, customer trust, profits, and revenues, as well as the organisation's identity and brand image, are impacted by the adaptation to e-commerce. E-commerce platforms, like a website, are regarded as one of the best ways to enhance sales by increasing customer attention to products. Although the overall cost of the business processes will increase due to its implementation, there is the possibility that it will have a positive impact on the overall business resources including cash flow and customer retention (Wu, Balasubramanian, & Mahajan, 2003).

Business resources are based on clients. They utilise social programming, which moves in a situation described by a changeless network, portability, being multichannel, and the advancement of the internet of things in the business. The distribution of feelings on the

internet permits clients to share their perspectives on an item or the administration, which impacts the business performance. Organisations take an interest in the informal community of clients interfacing via their objective gathering. This provides an opportunity to pick up business-pertinent bits of knowledge from the information available from the correspondence among clients. These electronic verbal proclamations are significant for associations since it is a way (1) to know how clients see their items or potential benefits, (2) to heighten the relationship, and (3) to adjust the business to customer needs. This situation is another model of the connection between individuals, which has moved virally to the connection between clients and friends. In contrast to other innovative upheavals, this adjustment in the manner in which they relate is not being driven by the organisations but by the clients and their desire that the organisations with which they relate work a critical change in their entrance models and carry on as per this new social reality. This new model speaks to a business open door for organisations to see their clients as the executives. As a workspace, it speaks to a test for organisations since it is important to oversee both human data, which are portrayed as being mind-boggling, unstructured, universal, multidesign, and multichannel, and the conventional data.

Hypothesis 4: Technological resources have a significant and positive impact on e-commerce adoption.

The assessment of the functioning of technological resources and their impact on e-commerce adoption is established via the compilation of an international technology plan. The components of the strategy need to be explicated and organised appropriately. Technological resources, such as the use of the internet and websites, not only increase communication with customers but ensure that organisations can use these channels to spur new sales channels.

The development of the characteristics and the strategies, which were based on the evaluation and use of technology, aligned with the core audience, deliverables were then assessed and the strategic execution was then assessed. It is believed that the communication approach will be far more effective if the policy is executed in a well-structured manner (Gerritsen, Jammeh, Xie, Doff, & Plate, 2016).

Technological resources can increase communication at the organisation level as well. While keeping the input constant, output for the organisation increased due to the adoption of e-commerce. Ease of communication, better organisational and operational management, marketing, and efficient sales are some of the major outcomes of the technological resources offered by the adoption of e-commerce (Baršauskas & Šarapovas, 2008).

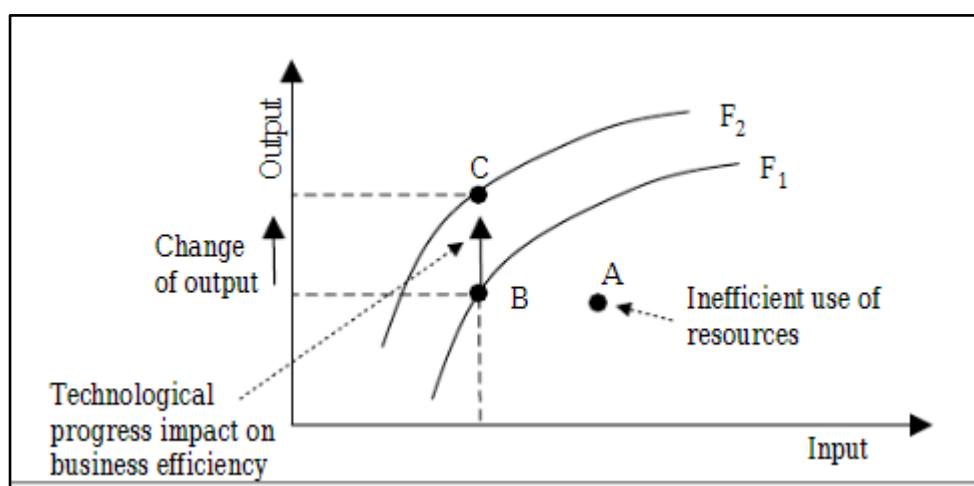


Figure 3.8. Technology impact

Basically these patterns are a verifiable desire that fruitful e-business and e-commerce wish to happen if, and only if, based on strong availability of technological resources results in a rise in activity. In any case, the idea of e-readiness implies various things to various individuals, in various settings, and for various purposes. Subsequently, a huge hole exists in thoughts and ideas as well as in down-to-earth applications and suggestions. Holes likewise exist in new desires and capacities for set up. Financial specialists as strategy creators would be very well served by the accessibility of apparatuses to lessen equivocality about choice and decisions in this general space. A lot of what we think about e-readiness—in principle and practically speaking—originates from a scope of studies that give a perspective on past execution, current evaluation, and future desires. Mutually, they ponder the trademark highlights of 'original of e-readiness evaluation'. This paper surveys these investigations, recognises focal propensities and selectivity, and proposes a methodology that, we accept, gives the premise to the up-and-coming age of e-readiness—for research approaches and appraisals as examples of real factors.

Hypothesis 5: Commitment has a significant and positive impact on e-commerce adoption.

Trust and commitment are of utmost significance in corporate culture at every business level. For SMEs, commitment and trust embodied in their customer base is key to making e-commerce adoption a flawless process (Ranasinghe, Lee, Suthokumar, & Do, 2016). These are the essential premises that are to be considered in the implication of trust and commitment from the organisation to the stakeholders at every level for the successful integration of e-commerce. The commitment to the export intermediaries, customers, and the entire stakeholders of the organisation make the adoption of e-commerce face less resistance. The measurement of these factors is the basis that must be ensured and carried out in the course of planning and structuring the approach to international e-commerce. The organisation must support e-commerce adoption at all levels of the organisation, particularly from strategic management (Molla & Licker, 2005a; Tan et al., 2007). There is a need for every organisation to develop a proper change management team for the successful adoption of e-commerce. SMEs must have a good managerial commitment to promoting and facilitating the transformation to use new technology and to dealing with any unexpected roadblocks to change that they may encounter in their adoption projects (Agarwal & Prasad, 1997; Chatterjee et al., 2002).

Hypothesis 6: Government has a significant impact on the adoption of e-commerce.

The government acts as one of the most significant drivers in the adoption of e-commerce. Especially in this fast-paced era of the internet, there is a rapid growth in electronic transactions, and with the changing global scenario, electronic transactions have become even more spontaneous. Governments on a global level are becoming anxious about being able to control the business sector and balance international cooperation and national needs. The government plays an important role in influencing technical innovation among consumers. It influences the adoption of e-commerce and encourages the introduction of different new technologies and technology designs in the long run. The adoption of e-commerce is mainly due to the intervention of the government in supporting competitive advantage. Through introducing electronic commerce, the government is also able to increase its tendency to move from localisation to globalisation.

Through introducing e-commerce, the government can introduce to the business sector the potential to change and introduce new business processes that influence consumer behaviour in the longer run. The government has a strong power in spreading the adoption of e-commerce by collaborating with different stakeholders and dismantling the barriers to the global business sector.

Hypothesis 7: Market forces' e-readiness influences the adoption of e-commerce.

The spread of global internet connectivity has played a vital role in influencing connectivity on a larger scale. This has also influenced lowering unit costs and has increased the concept of internationalisation of market goods, labour costs, and information shared on a large scale. E-commerce has played an important role in influencing technological and socio-cultural development. This influences the explanatory power of e-readiness in introducing innovation, starting on a smaller scale. With the development of a worldwide economy, web-based business is turning into a solid impetus to extend business dealings and create a functioning client base. It is not difficult to see the progressive manner in which internet business has helped businesses. The coordination of data and correspondence has completely changed the connections between associations, purchasers, and the individuals who function as the middle people between the associations and shoppers. The utilisation of data innovation has empowered more noteworthy customer investment as well as aided in mass correspondence along with decreased expenses.

The procedure of trade is innovation intercession and depends on embodying intra-authoritative exercises to encourage such trade. In this specific situation, web-based business is all electronically interceded exchanges between an association and any outsider. To sum up, web-based business is not confined to purchasing and selling, and it has become a more open term than it previously was. Thus, internet business is a procedure of joining every one of the organisation's procedures, exercises, and administrations towards the purchasing and selling of items and towards the trade of data and assets with the organisation's associates using PC systems and electronic advances. The term internet business and e-business are compatible. Numerous individuals use e-business or even e-promoting when discussing web-based business in a more extensive

circle. A great outline of the closeness between the two terms can be found in IBM's definition of e-business: "the change of key business process using web innovations".

Hypothesis 8: Significant impact of government e-readiness in adopting e-commerce

There is no denying that government e-readiness plays an important role in influencing the adoption of e-commerce. The government e-readiness model plays an important role in the adoption of technological resources among the business sector and plays a significant role in influencing the successful development of e-commerce and influencing its benefits, especially with respect to the more effective development of sustained advantage. Government e-readiness is operational through six basic variables including awareness, commitment, human resources, business resources, technological resources, and also governance. The government's e-readiness is influenced by the perception of the business sector operating and measuring the success of the development process at large. The successes of government e-readiness are important in the adoption of e-commerce and the development of the business sector. This helps in influencing the management of different organisations to adopt this level in the fusion of their business perspective along with human resources in the adoption of e-commerce on a larger scale.

Hypothesis 9: Supporting e-readiness of industries in the adoption of e-commerce

Information and technology play an important role in influencing the growth of different industries across the world. This has influenced efficiency on a larger scale and in adopting the operations influenced by the technology. Different studies employ the advantage of e-commerce utilising different operations and communications at a global level. This helps in influencing the growth of different industries and in influencing employment opportunities on a larger scale. But with businesses switching their operations to the e-business sector, this has influenced the overall operations of the business sector associated with high tech firms and adopting e-commerce on a larger scale. Industries today are in a good position to adopt e-commerce and support e-readiness to reduce barriers on a global level. This is considered one of the major changes in improving customer service and expanding the business sector in new markets internationalising business opportunities on a larger scale.

Hypothesis 10: Impact of social factors in the adoption of e-commerce

There is no denying that different factors, especially social, cultural, and environmental, play a vital role in influencing the economic growth of any country and in the adoption of innovation and technology. These factors have played a vital role in influencing the welfare of a state. Different countries have different social, cultural, and environmental factors that are responsible for influencing the changes taking place in the economic sector. The adoption of e-commerce is influenced by the diffusion of the social, cultural, environmental, and other factors influencing the growth of the business sector and also those influencing the intensity of economic development. A few of the major determinants in the adoption of e-commerce include the analysis and implementation of different practices indicating the necessary measures essential to integrating the technical composition of the determinism of the organisational and environmental constructs.

Hypothesis 11: Influencing consumer awareness in the adoption of e-commerce

E-commerce has paved the way for providing different opportunities to able to interact with the consumers electronically. Moreover, the creation of different e-commerce factors has also affected the physical border and reducing barriers at a global level. This has also created an awareness among consumers about institutionalisation and e-readiness in accelerating e-commerce at a faster pace. Moreover, this has also created the subset of e-purchasing, selling, and exchanging goods and services on their doorstep. The concept of e-commerce has additionally created a separation between consumers and marketers and the monetary information being shared. E-commerce has greatly influenced awareness among the consumers and has influenced their power with respect to decision-making and identifying different options available to them, regardless of any barriers involved.

Chapter 4: Research Methodology

4.1 Introduction

The most important stage of any research is a research methodology that should consider the nature, aims, and assumptions of the research to assure the best outcomes. Furthermore, to develop a good research design, Saunders, Lewis, and Thornhill's research onion (2009) is an appropriate guide (Figure 4.1). Research planning should begin with a good understanding of the research philosophy, defined by Saunders et al. (2009) as "an overarching term relating to the development of knowledge and the nature of that knowledge". According to the nature and aims of this research, it is clear that positivism is the appropriate paradigm to adopt with a deductive reasoning research approach. Moreover, the chosen research methodology must match the research nature and goals (Collis & Hussey, 2003), which in this case are to explore and identify the main factors that affect e-commerce adoption, therefore making this an exploratory research. Also, survey strategies were used to conduct the research. Regarding the objectives of this research, both qualitative and quantitative approaches, known as a multimethod approach, were used, as both quantitative and qualitative methods can share in the achievement of the aims (Haase & Myers, 1988).

To discuss the methodological implications of this research, Saunder's research methodology model was used. This model is also referred to as the onion model, and it aims to explore different stages of dissertations for better organisation of research purposes. Numerous limitations were employed and examined from this model for the development of the final research design. The onion model is necessarily comprised of six significant layers, which are philosophy, approaches, strategical implications, choices, time horizons, and maintenance of techniques and procedural implications.

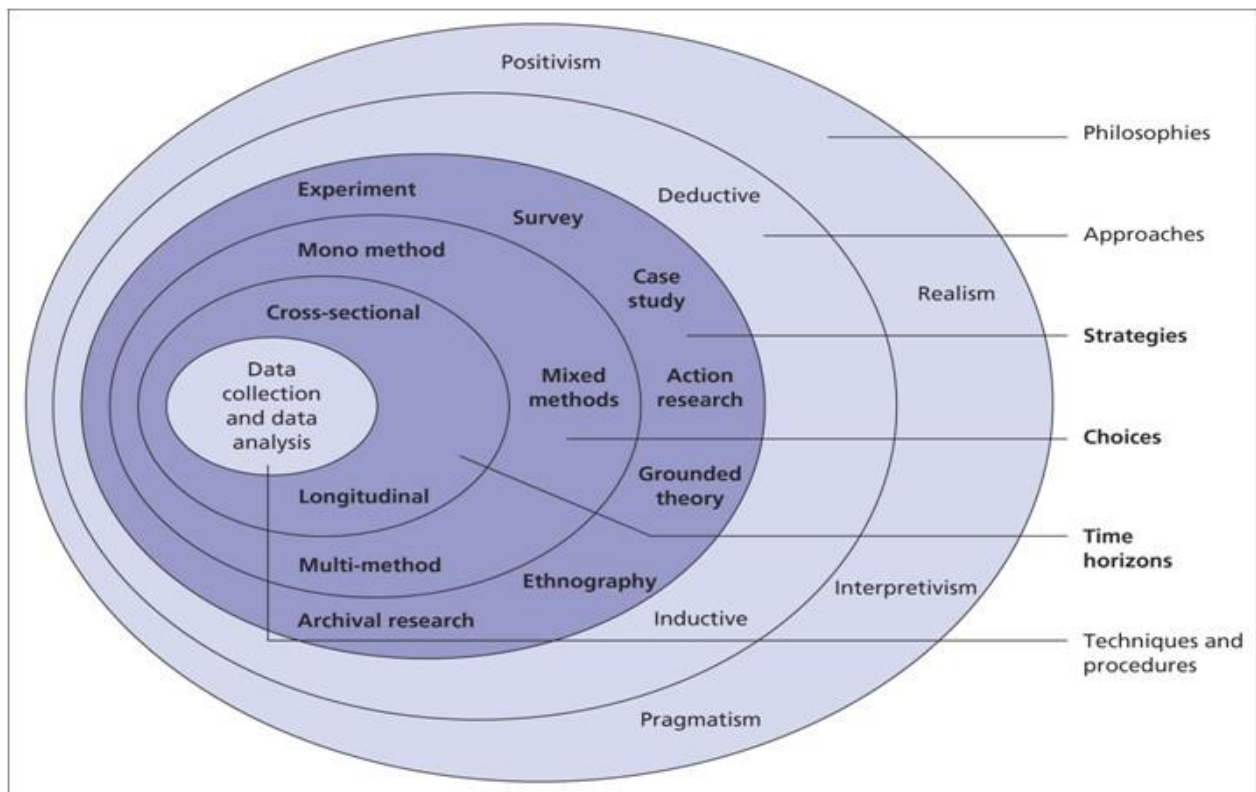


Figure 4.1 The research onion by Saunders et al. (2009)

4.2 Research Philosophy

To assess the philosophy of the research, it is imperative that principles concerning the stances or the worldview evaluated in this step are based on the research that was carried out. This step is mainly related to the assessment of the authenticity of valid information. It is important that the research philosophy of interpositivism is indicated in this research because, according to this approach, individual observers have their perceptions and understandings about reality-based conditions clarified.

4.3 Research Design

As far as the qualitative research design is concerned, it is important that descriptive research used in this research were purely derived from the codes generated in the course of study. The descriptive research design must recognise the characterisation of the simultaneous collection of research data and analysis of the whole sum. Both primary and secondary sources were employed for this research, such as the journal articles and pre-

existing research papers, from which it was easy to assess why Saudi Arabia is a wealthy country not able to maintain new platforms and technology.

4.4 Research Approach

After the selection of a suitable methodology, the next step according to the research onion model is the selection of the most suitable approach and specific hypothesis development based on literature review, which will be used by the researcher to test the hypotheses in the particular context and frameworks. It is important to note that an inductive approach was used in the research for the observations and creation of new research.

4.5 Research Populations and Sampling Methods

This research considers four different populations representing those groups involved in e-commerce adoption in Saudi Arabia, namely SME stakeholders, Saudi consumers, governmental departments, and supporting industries. Moreover, four sampling frames were determined and used to select actual research samples using Krejcie and Morgan's (1970) table of determining sample size from a given population (table 4.1).

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Table 4.1. Krejcie and Morgan's (1970) table for determining sample size for a given population

4.5.1. SME stakeholder sample

According to the Saudi Ministry of Commerce and Industry, the total number of SMEs in Saudi Arabia is more than 7000, and only 3200 of them deal with individual consumers (B2C). Therefore, the stakeholder sample frame was the non-patterned list of 3200 SMEs (B2C) obtained from the Ministry of Commerce and Industry. Thus, from the sample size table (Table 4.1), the actual number of required responses is 346 with a confidence level of 95% and confidence interval of 4.98% (calculations made by using an online sample size calculator at surveysystem.com). The consideration of non-responses is determined as well. According to Al-Somali et al., (2010) the response percentage of using mailed and

emailed questionnaires for a similar population in Saudi Arabia is 32.7%. This means the number of questionnaires sent is

$$N = 346 / 32.7 \% = \mathbf{1058} \text{ questionnaires to be sent by post and emails.}$$

4.5.2. Sample of Saudi customers

The Saudi customers' sample frame covers the various segments of Saudi society. It is clear that this population is very large, so according to CRS (2010), in such a case, the actual sample size is 600, with a confidence level of 95% and confidence interval of 4% (calculations made by using online sample size calculator at surveysystem.com). Also, Hamilton (2012) suggested a response rate of 41%; thus, the total number of questionnaires that were sent is

$$N = 600 / 41\% = 1463 \text{ questionnaires sent by post and emails.}$$

4.5.3. Sample of governmental departments

The governmental department's sample frame includes the Communications and Information Technology Commission, the Ministry of Communication and Information Technology, and the Ministry of Commerce. The population of government departments is very limited, so the research covers all of them by conducting interviews with decision makers in these organisations.

4.5.4. Samples of supporting industries

The population of the supporting industries represented involved decision makers of ICT services providers and Saudi banks—three ICT services providers and eleven commercial banks. So, the research covers all of them by conducting interviews with decision makers in these organisations, resulting in a total of 15 interviews.

4.6 Data Collection

The usefulness of a research project depends on the overall quality of the data collected and analysed, based on the design (Hamilton, 2009). This means that the stage of data

collection is considered to be the most important step in conducting research, as it either leads to achieving the goals of the research or fails to achieve these goals. Moreover, because of the four different populations of this research, it is appropriate to use different methods to collect the required data depending on a few issues, such as population size, the nature of factors and questions asked, and accessibility to the population. As the study involves multiple methods and processes, Table 4.2 illustrates the data collection processes, approaches, number of responses and interviews for each group, and associated outcomes.

Population		SMEs	Saudi Consumers	Governmental Departments	Supporting industries
H1	SME awareness of e-commerce	$r = .836$	N/A	N/A	N/A
H2	SME Human resources	$r = .830$	N/A	N/A	N/A
H3	SME Business resources	$r = .826$	N/A	N/A	N/A
H4	SME Technological resources	$r = .821$	N/A	N/A	N/A
H5	SME Commitment	$r = .820$	N/A	N/A	N/A
H6	SME Governance	$r = .805$	N/A	N/A	N/A
H7	Market forces' e-readiness	$r = .792$	$r = .667$	supported	supported
H8	Government e-readiness	$r = .743$	$r = .942$	supported	supported
H9	Supporting industries' e-readiness	$r = .698$	$r = .673$	supported	supported
H10	Social factors	N/A	$r = .719$	supported	supported
H11	Consumer awareness	N/A	$r = .825$	supported	supported
* r = structure coefficients (Discriminant loadings)					

Table 4.2. Data collection

4.7 Research Methods

It is imperative to note that the data collection method used in this research included interviews, questionnaires, surveys, and documentation with record maintenance. It is important to note that the research proposes a mono-method, as only qualitative modes were employed. It assessed which sorts of complications were faced by the people in employing the new structure of e-commerce.

4.7.1. Interview method

As part of this study requires collecting qualitative data from governmental organisations and supporting industries and because of the limited size of these populations, the semi-structured interviews were the best choice. It is best to use it in a one-to-one form with varying levels of standardisation (Aaker et al., 2008). There are two reasons for this: the first reason is that a face-to-face interview allows the researcher to know the interviewee's feelings, thoughts, and opinions; and second, it is viable to cover an appropriate number of interviewees who represent the population.

When planning for the interviews, there are a few aspects that need to be considered. First, the researcher prepared the question schedule. Second, the researcher set an appropriate schedule for the interviews, which included the time, location, and confirmation from the Ethics Committees at the University of Portsmouth and Saudi Cultural Bureau of London, the governmental sponsor of this research project. Participants' acceptance was requested as well by sending interview requests to selected decision makers in the Communications and Information Technology Commission, the Ministry of Communication and Information Technology, and the Ministry of Commerce. Also, interview requests were sent to decision makers of three Saudi telecommunication companies and eleven commercial banks. Third, the interview gave an appropriate introduction to the researcher and research aims, including the appropriate recording methods used in the interviews and that participants were informed about this (Appendix 5). Notes were taken of the interviewees' answers. While conducting the interview, the following was considered by the interviewer: gentleness, respect, sensitivity, and openness. Also, ethical issues considered by the researcher included guaranteeing the interviewees' anonymity and privacy, seeking their consent, and avoiding asking personal details. The interviewer also avoided subjectivity. Before conducting the interviews, the schedule had to be prepared with clear, open, direct questions appropriate for the given time and to collect the required data. The interview questions were tested before use to ensure clarity.

4.7.2. Questionnaire method

Regarding the nature of this study and its objectives, the researcher decided to use questionnaire methods to collect the required data from two different populations—Saudi

customers and SMEs' decision makers. Thus, two different questionnaires were designed using structured Likert scale questions. These surveys were distributed through email and postal services. Also, there are two advantages to using emailed and posted questionnaires. First, it allows the researcher to cover a wide geographical area to reach the selected people, which if other methods were used, would require much more effort such as long-distance travel and arranging dates and times.

4.8 Validity and Reliability Issues

In order to further authenticate the process of data analysis, validity and reliability tests were conducted. These are the two most important aspects to authenticate research, especially qualitative research. This is the degree to which the evidence is supported through a more effective interpretation of the data. The traditional criteria for the validity test was generated in accordance with the positivist tradition. Through the process of validation, research would be conducted by analysing the research questions and research hypothesis, while the reliability of the data would identify whether conducting the research repeatedly would generate similar results under similar conditions. This research was conducted over a larger group of people, and the research instrument was similarly focused on identifying accurate results. In this process, the research was conducted repeatedly under similar conditions. Still, there are several threats to the process of validity and reliability of the research which can question the accuracy of the results determined. In this process, statistical analysis was conducted to ensure that the stats were correctly stated and registered all the factors to ensure that the results generated were accurate. In case that the data registered were generalised, the results obtained were inaccurate. These tests were mainly undertaken to ensure the trustworthiness of the research.

The report also observed discriminant validity which helps to determine whether a study supports reality or is not related to the concepts. Discriminant validity suggested that there was no correlation between the variables generated for the study.

4.9 Data Analysis

The final layer of this model includes the techniques and procedural implications by which the assessed research observed, and at this stage, both the primary and secondary data collected from different sources, were evaluated. In this regard, the content analysis strategy was used, as it is one of the most precise and common methods for the analysis of qualitative data and documentation of information to be analysed in the form of texts, physical items, and peer-reviewed journal articles. One of the compelling reasons to use this method is the fact that content analysis was the main consideration of this research.

4.9.1 Data Analysis of Interviews

To analyse the qualitative data collected through interviews, there were a few scientific steps followed in sequence (Beatty, 1995). The first step was to write a summary of each interview after the interview was completed. This summary included general information about the interviewee as well as information about the interviewee's answers. Then the researcher organised the collected data into transcript format to provide an easy format for analysis. Next, to facilitate the analysis process, the answers were categorised, grouped, and coded, after which the data were reorganised according to the similarity of the groups and codes. In the final step, these data were analysed by writing a narrative report stating the results of the interviews.

4.9.2. Data Analysis of Questionnaires

According to Mann (2007), quantitative numerical data needed to be analysed descriptively first. So, after the responses were collected, data were edited to check them and correct numerically coded errors before being entered into SPSS software. After that, these data were analysed by applying various descriptive data analysis techniques, such as percentage, X^2 , standard deviation, and mean value to illustrate clear visions about the collected data. The next step was to apply appropriate statistical inference tests, such as factor analysis (Cronbach's alpha), correlation analysis, and discriminant analysis. The results of these tests either supported the hypotheses of the study or rejected them.

4.9.3. Research Ethics

When conducting any research, it is essential to identify the ethical issues considered to ensure the best outcomes. Therefore, the researcher considered several research ethics principles provided by the Economic and Social Research Council (ESRC, 2012). Moreover, some ethical principles regarding Saudi society and Islamic religion were considered as well. First, quality and integrity were considered when designing, reviewing, and undertaking this research. Second, the participants of this research were informed about the aims, objectives, and use of the research findings. Thirdly, the privacy policies concerning participants' information were completely respected. Also, participation was entirely voluntary, and the researcher did not use any kind of pressure to force participation. Moreover, the researcher avoided any harm, which may have affected the participants. Also, this research was completely objective, without any conflict of interest or bias towards a particular view. The researcher completely respected all religions and faiths, so there was no conflict in this regard at all. Moreover, the researcher was aware that Saudi females live in a hidden society and cannot be contacted directly, so an appropriate way to reach them (phone, Skype, etc.) was used. Finally, regarding the Islamic rules in Saudi Arabia in terms of prayer times, the researcher avoided time conflicts with prayer times when setting up the interview schedules.

Ethical considerations of this research were considered to be the most imperative part of the research, and it was designed to ensure that participants felt relaxed during participation. In this regard, there were a few considerations, as follows:

- Every participant signed the form about the provision of their information or experiences voluntarily.
- No harm was experienced in sharing their wishes.
- Informed consent was given.
- Participation was voluntary.
- Confidentiality was maintained.
- Anonymity was maintained until the end of this research.

4.9.4. Limitations

There are certain evident implications based on which the limitations of the study are the completion time required to execute the work and the researcher's ability to address the large sample size of the primary research. For the completion time, the research was limited due to the timing guidelines for the completion of the dissertation. For the ability of the research to include the large sample size to execute the primary research, time limitations and the means and resources for completion made it clear that researcher had to allow enough time for each part of the comprehensive study.

4.9.5 Conclusion

To determine the methodology and the nature of the research question given, qualitative research was proposed. This was because all of the activities in this research were conducted in the absence of hard facts and numerical data. Thus, in this regard, the different factors were assessed in determining the critical success factors in Saudi Arabia for the adoption of e-commerce services and implications. In this regard, the open-ended interviews and experiences shared by the participants resulted in conversational communication.

Chapter 5: Data Analysis Using Surveys

5.1 Introduction to Data Analysis of SMEs' Perspective Using Surveys

This chapter presents the results of the data analysis related to SMEs' perspective. The objective was to investigate the current status of e-commerce in Saudi Arabia and to identify the factors affecting its adoption level. The study was based on a discriminant analysis of a sample of 488 survey responses collected from Saudi SMEs. The SMEs' perspective represents one of four perspectives examined regarding their influence on e-commerce adoption in Saudi Arabia, which are SMEs' perspective, consumer perspective, government perspective, and supporting industries' perspective. In this chapter, the focus of the research is on the analysis of data gathered using nine predesigned construct models and how they are affecting the e-commerce adoption level (ECAL) from Saudi SMEs' perspective. These constructs cover organisational and environmental aspects considered by many researchers in the literature as factors that affect e-commerce adoption in developing countries (AbouSaber, 2007; Al-Harby, 2006; Al-Khilaiwi, 2007; ESRC, 2012; Kurnia et al., 2009; Mann, 2007; Mbamba, 2006; Molla & Licker, 2005b; Nathan, 2009; Sait, Al-Tawil, & Hussain, 2007; Saunders et al., 2009; Selim, 2008; Uzoka, Seleka, & Khengere, 2007). Also, the exploratory study was conducted as supporting the existence of these effects in Saudi Arabia. The organisational aspects include the following: organisational awareness (OA), human resources (HR), business resources (BR), technological resources (TR), organisational commitment (OC) and organisational governance (OG). The environmental aspects include market force e-readiness (MFER), government e-readiness (GER) and supporting industries' e-readiness (SIER). Each of these constructs had a specific questionnaire that was designed by the researcher to measure it using five-point Likert-scale questions.

The data analysis process is herein presented as a set of five steps. First, by way of reminder, the model construction and research hypotheses for Saudi SME's prospective analysis are summarised, including reference to the survey questions relevant to each hypothesis. Second, data collection and data screening are presented. Next, a demographic analysis of the sample is provided, using characteristic distributions and

summary statistics, such as mean values and standard deviation, to illustrate the make-up of the collected data. The quality and reliability of the data gathered are then summarised using Cronbach's alpha to indicate how well the instrument items are positively correlated with each other within a construct. Next, the results of a preliminary analysis of the collected data are presented using ANOVA, log determinants, and Box's M test. Finally, the results of the discriminant analysis are provided together with a discussion of the implications of these results so far as they resolve the underlying objective of this study. In short, the results suggest that all eight hypotheses of the research supported the relationships between the nine constructs and that the e-commerce adoption level has been statistically explained.

5.1.1. Model construction and hypotheses of SMEs' perspective

The nine research hypotheses of the SMEs' perspective and the associated research model construction (Figure 5.1) have been developed and discussed in detail in the previous chapters. E-commerce adoption level (ECAL) represents the dependent variable. This is a categorical variable that uses a six-point scale question to measure the level of e-commerce adoption where: 1 = not connected to the Internet and no email; 2 = connected to the Internet with email but no website; 3 = static web, that is publishing basic company information on the web without any interactivity; 4 = interactive web presence, that is accepting queries, email and form entry from users; 5 = transactive web, that is online selling and purchasing of products and services, including customer service; and 6 = integrated web, that is the website is integrated with suppliers, customers, and other back-office systems allowing most of the business transactions to be conducted electronically. These six categories were used in the discriminant analysis to divide the SMEs according to their responses. Also, the accuracy of discriminant functions classifications/prediction were measured by comparing the discriminant function classifications to the actual responses to a question.

The independent variables representing the nine constructs of the model are organisational awareness (measured by seven questionnaire items), human resources (measured by three questionnaire items), business resources (measured by six questionnaire items), technological resources (measured by seven questionnaire items), organisational

commitment (measured by five questionnaire items), organisational governance (measured by eight questionnaire items), market force e-readiness (measured by four questionnaire items), government e-readiness (measured by four questionnaire items) and supporting industries' e-readiness (measured by six questionnaire items). These questionnaire items were designed and developed in the research design chapter and were measured using a five-point Likert scale, i.e. completely disagree = 1, disagree = 2, neutral = 3, agree = 4, and completely agree = 5. To ensure that these items measured the constructs accurately, the researcher took several validation steps, which included an extensive review of the literature, conducting an exploratory study that identified the potential factors affecting e-commerce adoption in Saudi Arabia, and using a two-way translation process reviewed by academics and peers, given that the survey was answered by Saudi residents and so had to be conducted in the Arabic language. Also, instrument piloting and a reliability test were applied.

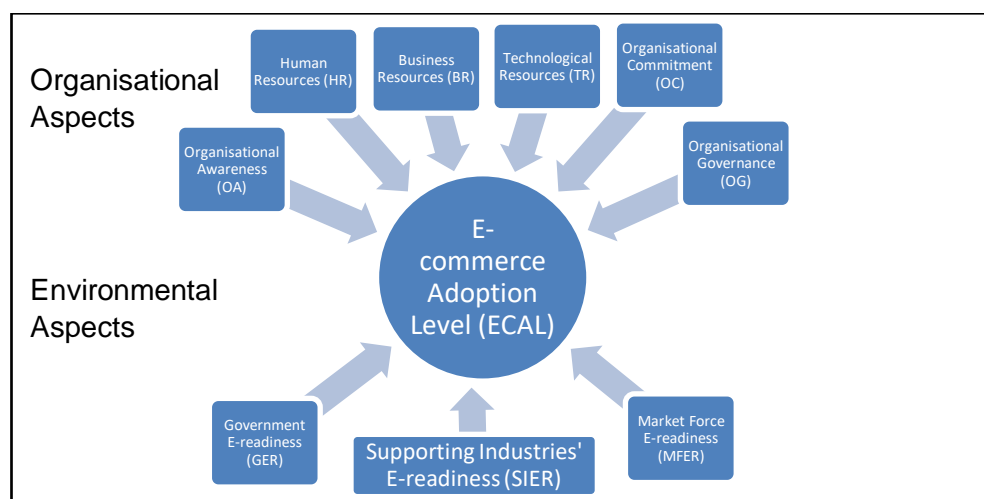


Figure 5.9 Proposed research model of SMEs' perspective

Hypothesis 1: From SMEs' perspective, SMEs' awareness of e-commerce has a significant and positive impact on e-commerce adoption level:

1. Our organisation is aware of the e-commerce implementations of our partner organisations.
2. Our organisation is aware of our competitors' e-commerce and e-business implementations.
3. Our business recognises the opportunities and threats enabled by e-commerce.

4. Our organisation understands e-commerce business models that can be applied to our business.
5. We understand the potential benefits of e-commerce for our business
6. Our organisation has thought about whether e-commerce impacts the way business is conducted in our industry.
7. Our organisation has considered whether businesses in our industry that fail to adopt e-commerce and e-business would be at a competitive disadvantage.

Hypothesis 2: From SMEs' perspective, human resources have a significant and positive impact on e-commerce adoption:

1. Most of our employees are computer literate.
2. Most of our employees have unrestricted access to computers.
3. We believe that we can employ computer professionals if needed.

Hypothesis 3: From SMEs' perspective, business resources have a significant and positive impact on e-commerce adoption:

1. Our people are open and trusting with one another.
2. Communication is very open in our organisation.
3. Our organisation exhibits a culture of enterprise-wide information sharing.
4. We have a policy that encourages grassroots e-commerce initiatives.
5. Failure is tolerated in our organisation.
6. Our organisation is capable of dealing with rapid changes.

Hypothesis 4: From SMEs' perspective, technological resources have a significant and positive impact on e-commerce adoption:

1. We have sufficient experience with network-based applications.
2. We have sufficient business resources to implement e-commerce.
3. Our organisation is well computerised with LAN and WAN.
4. We have high bandwidth connectivity to the internet.
5. Our existing systems are flexible.
6. Our existing systems are customisable to our customers' needs.
7. We can supply sufficient technological resources if needed.

Hypothesis 5: From SMEs' perspective, commitment has a significant and positive impact on e-commerce adoption:

1. Our business has a clear vision of e-commerce.
2. Our vision of e-commerce activities is widely communicated and understood throughout our company.
3. Our e-commerce implementations are strategy led.
4. All our e-commerce initiatives have champions.
5. Senior management champions our e-commerce initiatives and implementations.

Hypothesis 6: From SMEs' perspective, governance has a significant and positive impact on e-commerce adoption:

1. Roles, responsibilities, and accountability are clearly defined within each e-commerce initiative.
2. E-commerce accountability is maintained via ongoing responsibility.
3. Decision-making authority is assigned for all e-commerce initiatives.
4. We thoroughly analyse the possible changes caused to our organisation, suppliers, partners, and customers as a result of each e-commerce implementation.
5. We follow a systematic process for managing change issues as a result of e-commerce implementations.
6. We define a business case for each e-commerce implementation or initiative.
7. We have clearly defined metrics for assessing the impact of our e-commerce initiatives.
8. Our employees at all levels support our e-commerce initiatives.

Hypothesis 7: From SMEs' perspective, market forces' e-readiness has a significant and positive impact on e-commerce adoption:

1. We believe that our customers are ready to do business on the internet.
2. We believe that our business partners are ready to conduct business on the internet.
3. We do not believe that the intention of Saudi consumers to use e-commerce is affected by religious and cultural matters.
4. We do not believe that Saudi consumers' intention to use e-commerce is affected by their awareness of e-shopping.

Hypothesis 8: From SMEs' perspective, government e-readiness has a significant and positive impact on e-commerce adoption:

1. We believe that there are effective laws to protect consumer privacy.

2. We believe that there are effective laws to combat cybercrime.
3. We believe that the legal environment is conducive to conducting business on the internet.
4. The government demonstrates a strong commitment to promoting e-commerce.

Hypothesis 9: From SMEs' perspective, supporting industries' e-readiness has a significant and positive impact on e-commerce adoption:

1. The telecommunication infrastructure is reliable and sufficient to support e-commerce and e-business.
2. The technology infrastructure of commercial and financial institutions is capable of supporting e-commerce transactions.
3. We feel that there is efficient and affordable support from the local IT industry to support our move to the internet.
4. Secure electronic transaction (SET) and/or secure electronic commerce environment (SECE) services are easily available and affordable.
5. Banking services provided by Saudi commercial banks are reliable and sufficient to support e-commerce.

The Saudi postal system is reliable and sufficient to support e-commerce and e-business.

5.1.2. Data Collection and Data Screening

More details about population, sampling, and survey design and management have been presented in the research design chapter. So, only a summary is presented in this section. The target population for this part of the research is Saudi SMEs, those using the B2C business type. At the time of writing of this report, there were 897,000 active companies according to Al-Ghaith, Sanzogni, and Sandhu (2010). Since it was impossible to collect complete population data from such a large number of cases. The required data were collected from a sample but from a sample that would be appropriate from which to infer population results. This required focusing on two key aspects—generating a representative sample and generating a sample of adequate size.

5.1.3. Representative sample

In this situation where a questionnaire survey is used to collect the required sample data and statistical tests are used to analyse this sample data to make inferences about the

whole population, probability sampling is the most appropriate approach to ensure that a representative sample is generated (Al-Somali et al., 2010). While Saunders et al. (2010) suggest that probability sampling is best carried out in four stages starting with a sampling frame. In this research, it was not possible to gain access to a definitive sampling frame for all Saudi SMEs, and so an alternative strategy was adopted. According to Anderson, Sweeney, Williams, Camm, and Cochran (2013), when the population is extremely large and it is impossible to generate a sampling frame that consists of a list of elements, statisticians recommend using a random sample in which two conditions are satisfied when selecting the elements, e.g. they must come from the same population, and they independently selected (Yu et al., 2010). This suggestion of using a random sample has conformed to the second stage in which the sampling technique is selected.

Firstly an emailed online survey link was sent to a random sample of Saudi SMEs, and secondly, hard copies of the survey were distributed to a random sample of Saudi SMEs in the largest four cities in Saudi Arabia—Riyadh (the capital city), Jeddah (the commercial capital of Saudi Arabia), Makkah Al-Mukarramah (the religious capital of Saudi Arabia and Islamic Religion), and Al-Madinah Al-Munawarah (the second religious capital of Islam). These cities are considered the largest four cities in Saudi Arabia, where about 40% of the Saudi population lives (Alam et al., 2011). Moreover, these four cities are considered the top shopping destinations in Saudi Arabia, where about 90% of retailers or B2C companies are located (CDSI, 2011). By using these two modes of survey distribution, the selection of cases was independent. In other words, there was no probability effect of any case selection on the selection of any other case (Al-Hudhaif & Alkubeyyer, 2011).

$$\text{Sample Size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)} \quad (1)$$

5.1.4. Adequate sample size

The next stage was to determine the required sample size, which the researcher has calculated using the well-established formula given in equation (1) below (Rea & Parker, 2014) and using the most frequently used values for key parameters—i.e. a confidence interval or margin of error of 5% and a confidence level value of 1.96 for a 95% confidence level (Almoawi & Mahmood, 2011).

That is,

z = z value (in this case set at 1.96 for 95% confidence level),

e = confidence interval or margin of error, expressed as decimal (in this case set at $0.05 = \pm 5\%$),

N = actual population size (in this case 897,000),

p = proportion in a selected response category (in this case set at 0.5— p is unknown but by setting $p = 0.5$, the value of $p(1-p)$ results in a sample size that will always be an overestimate of the same if the actual $p(1-p)$ is used.

Using the parameters above, the required minimum sample size is 384, whereby this sample size will ensure that with 95% confidence any population proportion inferred from the sample will lie within 0.05 of the true population proportion. On the other hand, according to Saunders et al. (2009), considering the response rate of recent similar studies in Saudi Arabia of 60% (Alhamdi, 2013; Anderson, Sweeney, Williams, Camm, & Cochran, 2013; Saunders et al., 2009) would require that the actual survey invitations be $384/60 \times 100 = 640$ invitations sent. However, once the data collection stage was completed, 517 responses were initially received, and once these were checked, and 29 responses were excluded due to missing data, the resulting sample consisted of 488 valid responses.

Since the collected sample number (488) was greater than the calculated required minimum number of responses (384), the level of accuracy of any results inferred from the data will be higher than that which would be achieved with the minimum sample number (384); that is, we can be more confident (i.e. 97.3%) that any proportion inferred from the sample will lie within the same error interval (0.05), or we can be just as confident (95%)

that any proportion inferred from the sample will lie within an even smaller interval of (0.0443) of the true population proportion. The final stage of sampling and data collection suggested by Saunders et al. (2009) was to check the representativeness of collected data. This check is discussed in the next section, the descriptive data analysis.

5.1.5. Descriptive data analysis

In order to gain a better understanding of the data gathered, descriptive data analysis is presented in this section. The researcher examined the collected data to understand the sample's demographic profile (see 'Demographic profile') and also to provide insights into the distribution of the independent variables used in the discriminant analysis (see 'Descriptive data of model variables').

5.1.6. Demographic profile

In order to examine how well the data were gathered, a representative sample of the targeted population was considered, and the demographic profile of 488 respondents was checked first (see Table 5.1). The table below shows that the study sample covered a diverse segment of Saudi SMEs. While there were no national statistics available for these characteristics, the data also show diverse coverage of various segments of the Saudi SME population.

	Demographic Data		Frequency	Percent %
1	Firm Size	Small	267	54.7
		Medium	221	45.3
Total			488	100%
2	Employment Size	<10	92	18.9%
		11–20	134	27.5%
		21–40	63	12.9%
		41–60	30	6.1%
		61–100	60	12.3%
		>100	109	22.3%
Total			488	100%
3	Business age	Under 11 year	141	28.9%
		11 to 20 years	225	46.1%
		21 to 30 years	78	16.0%
		31 to 40 years	23	4.7%
		41 to 50 years	15	3.1%
		More than 50 years	6	1.2%
Total			488	100%
4	Turnover	<100,000 SR	31	6.4%
		101,000 SR to 250,000 SR	32	6.6%
		251,000 SR to 500,000 SR	32	6.6%
		501,000 SR to 1,000,000 SR	4	0.8%
		1,000,001 SR to 2,000,000, SR	50	10.2%
		2,000,001 SR to 5,000,000, SR	72	14.8%
		5,000,001 SR to 10,000,000, SR	154	31.6%
		>10,000,000 SR	113	23.2%
Total			488	100%

Table 5.1 Demographic data

5.1.7. Descriptive data of independent variables

As mentioned earlier, discriminant analysis was used to determine which independent variables were discriminants between the groups of dependent variables (Anderson et al., 2013; ArabiaWeather, 2013; Saunders et al., 2009). In this research, the independent variables were organisational awareness (OA), human resources (HR), business resources (BR), technological resources (TR), organisational commitment (OC), and organisational governance (OG). The environmental aspects include market force e-readiness (MFER), government e-readiness (GER) and supporting industries' e-readiness (SIER). Each of these independent variables had a specific questionnaire that was designed by the researcher to measure it using five-point Likert-scale questions, i.e. 1 = completely disagree and 5 = completely agree. Also, the dependent variable was the e-

commerce adoption level (ECAL), which is a categorical variable that uses a six-point scale question to measure the level of e-commerce adoption where 1 = not connected to the internet and no email; 2 = connected to the Internet with email but no website; 3 = static web, that is publishing basic company information on the web without any interactivity; 4 = Interactive web presence that is accepting queries, email and form entry from users; 5 = transactive web, that is online selling and purchasing of products and services including customer service; and 6 = integrated web that is the website integrated with suppliers, customers, and other back-office systems allowing most of the business transactions to be conducted electronically. These six categories were used in the discriminant analysis to divide the participants according to their responses to the question, and so any conclusions drawn have been based upon the use of advanced statistical tests.

Therefore, since the efficacy of these tests is highly dependent upon the quality of the underlying data, it is very important to examine this sample data at a basic level before proceeding with population inference and the use of any advanced statistical tests by descriptively analysing the sample data first to summarise the basic features of the collected data (Saunders et al., 2009). The proposed model, its constructs, and items have been summarised in 5.1.1., where it was mentioned that a five-point Likert scale was used to measure the item responses. The highest possible expected value of the mean is 5, and mean values between 4 and 5 were considered the highest and therefore indicative of a complete tendency towards an agreement with the item question. Mean values between 3 and 4 were considered as relatively high and therefore indicative of a tendency towards an agreement with the item question. Mean values between 2 and 3 were considered to be relatively low values and therefore indicative of a tendency towards disagreement with the item question, and finally, mean values between 1 and 2 were considered to be extremely low and therefore indicative of a tendency towards strong disagreement with the item question.

In Table 5.2, the means of the organisational awareness items are presented. It can be seen there that the means of all items were limited between 2.43 as in item 7 and 2.96 as in item 5, which indicates that most of the participants do not believe that their organisations are aware of the e-commerce implementations of their partner organisations,

that their organisations are aware of their competitors' e-commerce and e-business implementations, that their business recognises the opportunities and threats enabled by e-commerce, that their organisations understand e-commerce business models that apply to their business, that they understand the potential benefits of e-commerce for their business, that their organisations have thought about whether or not e-commerce impacts the way business is conducted in their industry, or that their organisations considered whether businesses in their industry that fail to adopt e-commerce and e-business would be at a competitive disadvantage. These findings have led to the conclusion that SMEs' awareness regarding e-commerce applications in Saudi Arabia is low.

	Mean	Std. Dev.
1. Our organisation is aware of the e-commerce implementations of our partner organisations.	2.72	1.347
2. Our organisation is aware of our competitors' e-commerce and e-business implementations.	2.90	1.199
3. Our business recognises the opportunities and threats enabled by e-commerce.	2.94	1.236
4. Our organisation understands e-commerce business models that can be applied to our business.	2.93	1.218
5. We understand the potential benefits of e-commerce for our business.	2.96	1.252
6. Our organisation has thought about whether e-commerce impacts the way business is to be conducted in our industry.	2.73	1.354
7. Our organisation has considered whether businesses in our industry that fail to adopt e-commerce and e-business would be at a competitive disadvantage	2.43	1.438

Table 5.2. Descriptive statistics of organisational awareness

In Table 5.3, the means of the human resources construct items are presented. Also, it can be concluded from the mean values of items 1 (2.74), 2 (2.32), and 3 (2.84) that most participants do not believe that their employees are computer literate and that most of their employees have unrestricted access to computers, nor do they believe that they could employ computer professionals if needed.

Descriptive Statistics of Human Resources	Mean	Std. Dev.
1. Most of our employees are computer literate.	2.74	1.375
2. Most of our employees have unrestricted access to computers.	2.32	1.277
3. We believe that we can employ computer professionals if needed.	2.84	1.368

Table 5.3 Descriptive statistics of human resources

Table 5.4 presents the means of the business resources construct items. The means for all six items have relatively low values between 2.37 as in item 6 and 2.93 as in item 3, and therefore this is indicative of a tendency towards disagreement with all of these items, indicating that many participants do not believe that their people are open and trusting with one another, that communication is very open in their organisations, that their organisations exhibit a culture of enterprise-wide information sharing, that they have a policy that encourages grassroots e-commerce initiatives, that failure is tolerated in their organisations, or that their organisations are capable of dealing with rapid changes.

	Mean	Std. Dev.
1. Our people are open and trusting with one another.	2.43	1.392
2. Communication is very open in our organisation.	2.61	1.299
3. Our organisation exhibits a culture of enterprise-wide information sharing.	2.93	1.329
4. We have a policy that encourages grass roots e-commerce initiatives.	2.91	1.348
5. Failure can be tolerated in our organisation.	2.68	1.348
6. Our organisation is capable of dealing with rapid changes.	2.37	1.417

Table 5.4 Descriptive statistics of business resources

The results in Table 5.5, show the seven means of the technological resources construct items. It shows that the means of items 1 to 6 are relatively low, between 2.57 as in item 2 and 2.80 as in item 6, again indicating that many participants do not believe that they have sufficient experience with network-based applications, that they have sufficient business resources to implement e-commerce, that their organisation is well computerised with LAN and WAN, that they have high bandwidth connectivity to the internet, that their existing systems are flexible, or that their existing systems are customisable to their customers' needs. Item 7 is the only one with a relatively high mean at 3.59, which indicates that many participants believe that they have the capability to supply sufficient technological resources if needed.

	Mean	Std. Dev.
1. We have sufficient experience with network-based applications.	2.67	1.443
2. We have sufficient business resources to implement e-commerce.	2.57	1.385
3. Our organisation is well computerised with LAN and WAN.	2.66	1.307
4. We have high bandwidth connectivity to the internet.	2.76	1.262
5. Our existing systems are flexible.	2.76	1.292
6. Our existing systems are customisable to our customers' needs.	2.80	1.322
7. We have the capability to supply sufficient technological resources if needed.	3.59	1.423

Table 5.5 Descriptive statistics of technological resources

The five items' means for the organisational commitment construct are presented in Table 5.6. These show that the means of all items are relatively low, between 2.26 as in item 1 and 2.80 as in item 5, indicating that many participants do not believe that their business has a clear vision of e-commerce, that their vision of e-commerce activities is widely communicated and understood throughout their companies, that their e-commerce implementations are strategy led, that all their e-commerce initiatives have champions, or that senior management champions their e-commerce initiatives and implementations.

	Mean	Std. Dev.
1. Our business has a clear vision of e-commerce.	2.26	1.260
2. Our vision of e-commerce activities is widely communicated and understood throughout our company.	2.44	1.259
3. Our e-commerce implementations are strategy led.	2.48	1.207
4. All our e-commerce initiatives have champions.	2.51	1.305
5. Senior management champions our e-commerce initiatives and implementations.	2.80	1.310

Table 5.6. Descriptive statistics of organisational commitment

The means of the eight items for the organisational governance construct are presented in Table 5.7. The means of all items are relatively low, between 2.67 as in item 1 and 2.91 as in item 6, indicating that most participants do not believe that roles, responsibilities, and accountability are clearly defined within each of their e-commerce initiatives, that e-commerce accountability is maintained via their ongoing responsibility, that their decision-making authorities have been clearly assigned to all e-commerce initiatives, they thoroughly analyse the possible changes caused to their organisations, suppliers, partners, and customers as a result of each e-commerce implementation, that they follow a systematic process for managing change issues as a result of e-commerce implementations, that they define a business case for each e-commerce implementation or initiative, that they have clearly defined metrics for assessing the impact of their e-commerce initiatives, or that their employees at all levels support their e-commerce initiatives.

	Mean	Std. Dev.
1. Roles, responsibilities, and accountability are clearly defined within each e-commerce initiative.	2.67	1.357
2. E-commerce accountability is maintained via ongoing responsibility.	2.81	1.309
3. Decision-making authority is assigned to all e-commerce initiatives.	2.81	1.226
4. We thoroughly analyse the possible changes caused to our organisation, suppliers, partners, and customers as a result of each e-commerce implementation.	2.82	1.189
5. We follow a systematic process for managing change issues as a result of e-commerce implementations.	2.87	1.224
6. We define a business case for each e-commerce implementation or initiative.	2.91	1.267
7. We have clearly defined metrics for assessing the impact of our e-commerce initiatives.	2.86	1.292
8. Our employees at all levels support our e-commerce initiatives.	2.81	1.378

Table 5.7 Descriptive statistics of organisational governance

The four items' means of the market force e-readiness construct are presented in Table 5.8. Again these show that the means of all items are relatively low, between 2.73 as in item 1 and 2.86 as in item 2, indicating that most participants do not believe that their customers are ready to do business on the internet, that their business partners are ready to conduct business on the internet, that the intention of Saudi consumers to use e-commerce is not affected by religious and cultural matters, or that the Saudi consumers' intention to use e-commerce is not affected by their awareness of e-shopping.

	Mean	Std. Dev.
1. We believe that our customers are ready to do business on the internet.	2.73	1.240
2. We believe that our business partners are ready to conduct business on the internet.	2.86	1.226
3. We do not believe that the intention of Saudi consumers to use e-commerce is affected by religious and cultural matters.	2.81	1.275
4. We do not believe that Saudi consumers' intention to use e-commerce is affected by their awareness of e-shopping.	2.78	1.358

Table 5.8. Descriptive statistics of market force e-readiness

The means of the four items of the government e-readiness construct are presented in Table 5.9. Again, these show that the means of all items are relatively low, between 2.70 as in items 1–2 and (2.93) as in item 3, indicating that most participants do not believe that there are effective laws to protect consumer privacy in Saudi Arabia, that there are effective laws to combat cybercrime, that the legal environment is conducive to conducting business

on the internet, or that the government demonstrates a strong commitment to promoting e-commerce.

	Mean	Std. Dev.
1. We believe that there are effective laws to protect consumer privacy.	2.70	1.227
2. We believe that there are effective laws to combat cybercrime.	2.92	1.265
3. We believe that the legal environment is conducive to conducting business on the internet.	2.93	1.245
4. The government demonstrates a strong commitment to promoting e-commerce.	2.70	1.295

Table 5.9. Descriptive statistics of government e-readiness

The means for the supporting industries' e-readiness six items are presented in Table 5.10. Also, these show that the means of all items are relatively low, between 2.60 as in item 1 and 2.82 as in item 6, indicating that most participants do not believe that the telecommunication infrastructure is reliable and sufficient to support e-commerce and e-business, that the technology infrastructure of commercial and financial institutions is capable of supporting e-commerce transactions, that there was efficient and affordable support from the local IT industry to support their move to the internet, that secure electronic transaction and/or secure electronic commerce environment services are easily available and affordable, that banking services provided by Saudi commercial banks are reliable and sufficient to support e-commerce, or that the Saudi postal system is reliable and sufficient to support e-commerce and e-business.

	Mean	Std. Dev.
1. The telecommunication infrastructure is reliable and sufficient to support e-commerce and e-business.	2.60	1.247
2. The technology infrastructure of commercial and financial institutions is capable of supporting e-commerce transactions.	2.65	1.258
3. We feel that there is efficient and affordable support from the local IT industry to support our move on the internet.	2.79	1.206
4. Secure electronic transaction (SET) and/or secure electronic commerce environment (SECE) services are easily available and affordable.	2.75	1.279
5. Banking services provided by Saudi commercial banks are reliable and sufficient to support e-commerce.	2.65	1.254
6. The Saudi postal system is reliable and sufficient to support e-commerce and e-business.	2.82	1.217

Table 5.10. Descriptive statistics of supporting industries' e-readiness

5.1.8. Quality of data gathered using Cronbach's alpha

The reliability of the survey questionnaire instrument was then tested using Cronbach's alpha to measure internal consistency. Consistency indicates how well the construct items are positively correlated with each other. Table 5.11 shows the results of Cronbach's alpha test where it can be shown that the coefficients of the items of each construct have relatively high internal consistency. The values shown in the 'Cronbach's Alpha' column used the inter-item covariances. George and Mallery (2003) suggested a guideline for categorisation of the alpha coefficient value where > 0.9 is considered excellent, > 0.8 is considered good, > 0.7 is considered acceptable, > 0.6 is considered questionable, > 0.5 is considered poor, and < 0.5 is considered unacceptable (p. 231). So, from Table 5.11, the Cronbach's alpha values were within the excellent and acceptable range. This means that the constructs can be applied to the analysis with acceptable reliability (AlGhamdi, 2014).

Items	Cronbach's Alpha	N of Items
Organisational Awareness (OA)	.953	7
Human Resources (HR)	.729	3
Business Resources (BR)	.907	6
Technological Resources (TR)	.934	7
Organisational Commitment (OC)	.907	5
Organisational Governance (OG)	.961	8
Market Force E-readiness (MFER)	.941	4
Government E-readiness (GER)	.913	4
Supporting Industries' E-readiness (SIER)	.950	6

Table 5.11. Alpha coefficient

5.1.9. Preliminary analysis using ANOVA

As will be discussed later in this chapter, discriminant analysis was used to predict group membership via the predicted value of a dependent variable, where the latter was derived from the observed values of several independent variables (Al-Ghaith et al., 2010). In this study the dependent variable is the e-commerce adoption level and the independent variables are organisational awareness, human resources, business resources, technological resources, organisational commitment, organisational governance, market force e-readiness, government e-readiness, and supporting industries' e-readiness. So, to proceed with the statistical analysis, it is important to confirm that for every independent

variable (i.e. construct), there are significant differences in its mean values across the different groups (as defined by the observed values of the dependent variable ECAL). Table 5.12 shows these groups' mean values, and Table 5.13 shows the results of the ANOVA test for differences in group means.

In Table 5.12, a simple inspection of the group means (and standard deviations) provides an idea of the likely importance of the independent variables in terms of their ability to predict group membership, e.g. the difference in group means of the organisational awareness construct suggests that the organisational awareness construct may be a good discriminator of ECAL group membership, as these variations are large as is the case with the difference in group means of the human resources construct, which also suggests that the human resources construct may be a good discriminator of ECAL group membership. This inspection can be applied to all of the independent variables in Table 5.14 from which it can be seen that a discriminant analysis is likely to yield fruitful results.

ECAL		Mean	Std. D.	Valid N (listwise)
1	Organisational Awareness (OA)	1.3701	.18333	83
	Human Resources (HR)	1.3447	.11797	83
	Business Resources (BR)	1.2386	.22289	83
	Technological Resources (TR)	1.3961	.24575	83
	Organisational Commitment (OC)	1.2386	.12451	83
	Organisational Governance (OG)	1.2358	.20096	83
	Market Force E-readiness (MFER)	1.2955	.16324	83
	Government E-readiness (GER)	1.3920	.17696	83
	Supporting Industries' E-readiness (SIER)	1.3087	.18490	83
2	Organisational Awareness (OA)	2.0195	.21970	144
	Human Resources (HR)	1.8873	.21443	144
	Business Resources (BR)	1.9580	.20860	144
	Technological Resources (TR)	2.0175	.28073	144
	Organisational Commitment (OC)	1.7813	.20129	144
	Organisational Governance (OG)	2.1673	.22500	144
	Market Force E-readiness (MFER)	2.0162	.24303	144
	Government E-readiness (GER)	2.1043	.22300	144
	Supporting Industries' E-readiness (SIER)	2.0180	.21859	144
3	Organisational Awareness (OA)	2.8413	.23255	79
	Human Resources (HR)	2.6214	.20244	79
	Business Resources (BR)	2.5905	.26094	79
	Technological Resources (TR)	2.9771	.18135	79
	Organisational Commitment (OC)	2.4642	.15436	79

	Organisational Governance (OG)	2.9028	.14922	79
	Market Force E-readiness (MFER)	2.8457	.21855	79
	Government E-readiness (GER)	2.7593	.26054	79
	Supporting Industries' E-readiness (SIER)	2.6255	.21656	79
4	Organisational Awareness (OA)	3.4782	.28487	80
	Human Resources (HR)	3.2269	.21542	80
	Business Resources (BR)	3.3519	.27344	80
	Technological Resources (TR)	3.5119	.27625	80
	Organisational Commitment (OC)	2.9861	.33115	80
	Organisational Governance (OG)	3.4861	.23879	80
	Market Force E-readiness (MFER)	3.4444	.17911	80
	Government E-readiness (GER)	3.4618	.26424	80
	Supporting Industries' E-readiness (SIER)	3.3750	.23194	80
5	Organisational Awareness (OA)	4.2763	.20181	61
	Human Resources (HR)	3.9617	.23647	61
	Business Resources (BR)	3.9754	.25610	61
	Technological Resources (TR)	4.2319	.24628	61
	Organisational Commitment (OC)	3.6787	.17618	61
	Organisational Governance (OG)	4.1496	.17944	61
	Market Force E-readiness (MFER)	4.2992	.20320	61
	Government E-readiness (GER)	4.2459	.18536	61
	Supporting Industries' E-readiness (SIER)	4.0765	.22684	61
6	Organisational Awareness (OA)	4.7629	.21537	41
	Human Resources (HR)	4.6383	.32474	41
	Business Resources (BR)	4.7057	.26056	41
	Technological Resources (TR)	4.7781	.18072	41
	Organisational Commitment (OC)	4.7447	.26606	41
	Organisational Governance (OG)	4.8165	.17062	41
	Market Force E-readiness (MFER)	4.8670	.16361	41
	Government E-readiness (GER)	4.7979	.17002	41
	Supporting Industries' E-readiness (SIER)	4.7411	.22471	41
Total	Organisational Awareness (OA)	2.8004	1.14291	488
	Human Resources (HR)	2.6332	1.07976	488
	Business Resources (BR)	2.6557	1.12055	488
	Technological Resources (TR)	2.8279	1.14233	488
	Organisational Commitment (OC)	2.4971	1.08398	488
	Organisational Governance (OG)	2.8189	1.13499	488
	Market Force E-readiness (MFER)	2.7946	1.17542	488
	Government E-readiness (GER)	2.8120	1.12084	488
	Supporting Industries' E-readiness (SIER)	2.7107	1.11194	488

Table 5.12. Group statistics

	Wilks' Lambda	F	df1	df2	Sig.
Organisational Awareness (OA)	.082	1072.480	5	482	.000
Human Resources (HR)	.091	967.021	5	482	.000
Business Resources (BR)	.102	849.900	5	482	.000
Technological Resources (TR)	.088	995.355	5	482	.000
Organisational Commitment (OC)	.113	758.129	5	482	.000
Organisational Governance (OG)	.085	1035.922	5	482	.000
Market Force E-readiness (MFER)	.085	1033.485	5	482	.000
Government E-readiness (GER)	.084	1046.550	5	482	.000
Supporting Industries' E-readiness (SIER)	.083	1059.152	5	482	.000

Table 5.13. Tests of equality of group means

The conclusions drawn from the inspection of Table 5.12 are further corroborated by the ANOVA tests of equality of group means in Table 5.13 where, if the F statistic corresponding to Wilk's lambda is statistically significant, it can be concluded that there are relationships between the dependent groups and the independent variables, and the lower the Wilks' lambda, the more important the independent variable is likely to be to the discriminant function (Saunders et al., 2009). Table 5.13 shows that all independent variables are statistically significant ($p < .05$) and that organisational awareness (Wilks' lambda = .082) is the most important independent variable, followed by supporting industries' e-readiness (Wilks' lambda = .083), government e-readiness (Wilks' lambda = .084), organisational governance and market force e-readiness at the same level (Wilks' lambda = .085), technological resources (Wilks' lambda = .088), human resources (Wilks' lambda = .091), business resources (Wilks' lambda = .108), and finally with Wilks' lambda = .113, organisational commitment is least important to the discriminant function.

Taking Table 5.12 and Table 5.13's results in combination suggests that the independent variables when taken together provide a good prediction of group membership via the predicted value of the dependent variable, in other words, that the constructs taken together provide a good prediction of group membership via the predicted value of ECAL.

5.1.10. Discriminant analysis

Discriminant analysis is defined as a statistical technique used to determine which independent variables are discriminant between the groups of the dependent variable (Burns & Burns, 2008; Mann, 2007; Poulsen & French, 2008; Tabachnick, 1996). Essentially, several independent variables are included in the analysis to find the ones which contribute to the discrimination between the groups by creating a linear equation which, when applied to the independent variables, predict group membership (George & Mallery, 2003). By knowing this equation, it is possible to predict a classification based on the independent variables and/or to assess how well the independent variables separate the groups of the dependent variable. Therefore, discriminant function analysis has been used in this research where we were interested in the relationship between a set of independent variables (OA, HR, BR, TR, OC, OG, MFER, GER, SIER) and one grouping/categorical dependent variable (ECAL).

In a discriminant analysis, the independent variables are often called predictors, as they are used to predict group membership via the grouping/dependent variable by using the resulting discriminant model and its discriminant linear equation and discriminant functions (Sekaran, 2006). With this in mind, the following subsections present the results of discriminant analysis using SPSS output tables, such as canonical discriminant functions, prior probabilities for groups, classification results (confusion matrix) and cross-validation.

It would not be wrong to say that discrimination analysis provides the right technique for conducting this research. This allows for the research data with criteria that allow dependence on the variable which is either categorical or is independent of the variable in the interval nature. The process of discrimination analysis also allows for the development of this research and examining the significant differences observed in the study and evaluating the accuracy of the classification.

Canonical Discriminant Functions

The first step, when applying discriminant function analysis is to find the statistical significance of the relationship between the independent variables and the dependent variable (Burns & Burns, 2008). This was found via the summary of canonical discriminant

functions in SPSS outputs, which will be presented in the following subsections, namely eigenvalues, Wilk's lambda, standardised canonical discriminant coefficients, unstandardised discriminant function coefficients, functions at group centroids, and finally structure matrix.

Eigenvalues

Table 5.14 shows information about the efficiency of the discriminant functions. According to Brown and Wicker (2000, p. 223), eigenvalues indicate the ratio of between-groups variability to within-groups variability for a function. The larger the eigenvalue, the better the independent variables are at accounting for the group differences. In other words, large eigenvalues mean that the discriminant function is more useful in distinguishing between the dependent variable groups. Eigenvalues are always listed in descending order: the first discriminant function is the most capable in terms of differentiating the groups, the second discriminant function is the second most useful function, and so on. The number of discriminant functions is equal to the number of dependent variable groups minus one (Tabachnick, 1996). So, in Table 5.14, there are five discriminant functions (since there are 6 groups). Table 5.14 also shows the canonical correlation coefficient values that measure the relationship between the independent variables and the dependent variable. These values show that function one had the strongest relationship between the independent variables and the dependent variable, followed by function two, three, four and so on, with function five having the weakest relationship.

Canonical Correlation 1 = $0.970^2 = 0.94$, and so 94% of the between-group variability is explained by the first discriminant function.

Canonical Correlation 2 = $0.507^2 = 0.257$, and so 25.7% of the between-group variability is explained by the second discriminant function.

Canonical Correlation 3 = $0.428^2 = 0.183$, and so 18.3% of the between-group variability is explained by the third discriminant function.

Canonical Correlation 4 = $0.318^2 = 0.101$, and so 10.1% of the between-group variability is explained by the fourth discriminant function.

Canonical Correlation 5 = $0.180^2 = 0.0324$, and so 3.24% of the between-group variability is explained by the fifth discriminant function.

From the above calculations and Table 5.14, it can be seen that 94% of between-group variability is explained by the first discriminant function that makes up 95.7% (see % of variance column) of the amount of between-group variance that the five modelled functions are together able to explain. Of the between-group variability, 25.7% is explained by the second discriminant function, which makes up 2.1% (see % of variance column) of the amount of between-group variance that the five modelled functions are together able to explain. The third discriminant function explains 18.3% of the between-group variability, which makes up 1.3% (see % of variance column) of the amount of between-group variance that the five modelled functions are together able to explain. The fourth discriminant function explains 10.1% of the between-group variability, which makes up 0.7% (see % of variance column) of the amount of between-group variance that the five modelled functions are together able to explain. Finally, 3.24% of the between-group variability that is explained by the fifth discriminant function makes up 0.2% (see % of variance column) of the amount of between-group variance that the five modelled functions are together able to explain.

F canonical discriminant functions have been used in the analysis.				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	15.900 ^a	95.7	95.7	.970
2	.347 ^a	2.1	97.8	.507
3	.224 ^a	1.3	99.1	.428
4	.112 ^a	.7	99.8	.318
5	.033 ^a	.2	100.0	.180

Table 5.14. Eigenvalues

Wilks' Lambda

Wilks' lambda is the proportion of the total variance in the discriminant scores not explained by differences among the groups (Burns & Burns, 2008). The lower Wilk's Lambda, the more the independent variable contributes to the discriminant analysis. From Table 5.15, the direct analysis identified 5 discriminant functions that are statistically significant and

explain the group members well. Table 5.15 shows that 3.1% of the variance between groups is not explained by function one, 52.8% of the variance is not explained by function two, 71.1% of the variance is not explained by function three, 87% of the variance is not explained by function four, and 96.8% of the variance is not explained by function five.

Test Function(s)	of	Wilks' Lambda	Chi-square	Df	Sig.
1 through 5		.031	1662.148	45	0.000
2 through 5		.528	306.450	32	.000
3 through 5		.711	163.654	21	.000
4 through 5		.870	66.844	12	.000
5		.968	15.760	5	.008

Table 5.15. Wilks' lambda

Standardised Canonical Discriminant Coefficients

Standardised canonical discriminant coefficients are used to rank the importance of each variable within a given discriminant function (see Table 5.16). Moreover, a high standardised discriminant function variable coefficient of the variable means that the variable has a greater discriminating ability. Function one is always the most powerful differentiating dimension (Poulsen & French, 2008). The sign of the values of the variable coefficients in the standardised discriminant function indicates the direction of the relationship. For example, in Table 5.16, the sign of (OA) in function 1 is positive; this means that any increase in the value of this variable led to an increase in function 1, while the sign of the coefficient value for the same variable (OA) in function 2 is negative, which means that an increase in the value of this variable led to a decrease in function 2.

Also, from Table 5.16, it can be concluded that the most important variable in distinguishing the groups in function one is organisational awareness (OA) = .313, followed by technological resources (.255), government e-readiness (.227), human resources and supporting industries' e-readiness (.208), organisational commitment (-.197), market force e-readiness (.103), organisational governance (.096), and finally business resources (-.023). In function two, the order of the variable importance is organisational commitment first (1.251), followed by human resources (.471), technological resources (-.468), organisational awareness (-.453), organisational governance (-.341), government e-readiness (-.336), market force e-readiness (-.292), supporting industries' e-readiness

(.216), and finally business resources (.172). In function three, the order of the variable importance is organisational governance first (1.547), followed by technological resources (-.596), organisational awareness (-.478), market force e-readiness (-.434), business resources (.427), human resources (-.254), government e-readiness (-.171), supporting industries' e-readiness (-.019), and finally organisational commitment (.012).

In the fourth function, the order of the variable importance is supporting industries' e-readiness first (-.904), followed by technological resources (.774), business resources (-.584), organisational commitment (.575), organisational governance (.485), government e-readiness (-.344), human resources (.127), organisational awareness (-.061), and finally market force e-readiness (-.003).

In the fifth function, the order of the variable importance is market force e-readiness first (-.836), followed by technological resources (.822), human resources (.466), supporting industries' e-readiness (.462), business resources (.454), organisational commitment (-.454), organisational awareness (-.370), government e-readiness (-.361), and finally organisational governance (-.172).

	Functions				
	1	2	3	4	5
Organisational Awareness (OA)	.313	-.453	-.478	-.061	-.370
Human Resources (HR)	.208	.471	-.254	.127	.466
Business Resources (BR)	-.023	.172	.427	-.584	.454
Technological Resources (TR)	.255	-.468	-.596	.774	.822
Organisational Commitment (OC)	-.197	1.251	.012	.575	-.454
Organisational Governance (OG)	.096	-.341	1.547	.485	-.172
Market Force E-readiness (MFER)	.103	-.292	-.434	-.003	-.836
Government E-readiness (GER)	.227	-.336	-.171	-.344	-.361
Supporting Industries' E-readiness (SIER)	.208	.216	-.019	-.904	.462

Table 5.16. Standardised canonical discriminant function coefficients

Unstandardised discriminant function coefficients

Unstandardised discriminant function coefficients are used to construct the actual prediction equation that has been used to classify new cases (see equation 2).

$$D = v_1 X_1 + v_2 X_2 + v_3 X_3 = \dots\dots\dots v_i X_i + a \quad (2)$$

Where D = discriminate function

v = the discriminant coefficient or weight for that variable

X = respondent's score for that variable

a = a constant

i = the number of predictor variables

The above uses of 'v' and 'X' should have subscripts of i. From Table 5.17, it can therefore be seen that the discriminant functions for the model are given by the following equations:

Discriminant function 1 = (.947)OA + (.637) HR + (-.063)BR + (.748)TR + (-.539)OC + (.289)OG + (.297)MFER + (.693)GER + (.643)SIER -10.269

Discriminant function 2 = (-1.372)OA + (1.440) HR + (.479)BR + (-1.372)TR + (3.419)OC + (-1.026)OG + (-.847)MFER + (-1.028)GER + (.670)SIER + .455

Discriminant function 3 = (-1.448)OA + (-.776) HR + (1.187)BR + (-1.747)TR + (.033)OC + (4.648)OG + (-1.257)MFER + (-.522)GER + (-.059)SIER -.153

Discriminant function 4 = (-.185)OA + (.390) HR + (-1.624)BR + (2.269)TR + (1.570)OC + (1.457)OG + (-.008)MFER + (-1.052)GER + (-2.801)SIER -.065

Discriminant function 5 = (-1.122)OA + (1.427) HR + (1.264)BR + (2.409)TR + (-1.240)OC + (-.518)OG + (-2.423)MFER + (-1.103)GER + (1.431)SIER -.229

where OA = organisational awareness, HR = human resources, BR = business resources, TR = technological resources, OC = organisational commitment, OG = organisational

governance, MFER = market force e-readiness, GER = government e-readiness, and SIER = supporting industries' e-readiness.

Canonical Discriminant Function Coefficients	Function				
	1	2	3	4	5
Organisational Awareness (OA)	.947	-1.372	-1.448	-.185	-1.122
Human Resources (HR)	.637	1.440	-.776	.390	1.427
Business Resources (BR)	-.063	.479	1.187	-1.624	1.264
Technological Resources (TR)	.748	-1.372	-1.747	2.269	2.409
Organisational Commitment (OC)	-.539	3.419	.033	1.570	-1.240
Organisational Governance (OG)	.289	-1.026	4.648	1.457	-.518
Market Force E-readiness	.297	-.847	-1.257	-.008	-2.423
Government E-readiness (GER)	.693	-1.028	-.522	-1.052	-1.103
Supporting Industries' E-readiness	.643	.670	-.059	-2.801	1.431
(Constant)	-10.269	.455	-.153	-.065	-.229

Table 5.17 Unstandardised coefficients

Functions at Group Centroids

The term 'functions at group centroids' refers to the group means of the independent variables and these means are used to describe each group in terms of its profile (Tabachnick, 1996). Table 5.18 shows the group centroids for each group, which helped to determine to which group a new case belongs. These centroids are used as a prediction guide to predict the group membership classification of a new case depending on its calculated discriminant score using equation 2. For example, if the score on discriminant function 1 is closer to -5.132, then the case belongs to the group of those who do not connect to the internet and have no email, whereas if the score on discriminant function 2 is closer to 1.515, then the case belongs to the group who have a fully Integrated website allowing most of the business transactions to be conducted electronically. Moreover, from Table 5.18, Function 1 separated respondents of groups 3 (.065), 4 (2.782), 5 (5.268) and 6 (6.986) (positive values) from respondents of groups 1 (-5.132) and 2 (-2.844) (negative values). Function 2 separated respondents of the groups 1 (.498), and 6 (1.515) (positive values) from respondents of groups 2 (-.004), 3 (-.630), 4 (-.300), and 5 (-.477) (negative values). Function 3 separated respondents of groups 2 (.531), 3 (.024), 4 (.073), and 6 (.267) (positive values) from respondents of groups 1 (-.726), and 5 (-.574) (negative values). Function 4 separated respondents of groups 1 (.016), 3 (.662), and 6 (.277) (positive values) from respondents groups 2 (-.198), 4 (-.175), and 5 (-.368) (negative

values). Function 5 separated respondents of groups 1 (.055), 4 (.365) (positive values) from respondents of groups 2 (-.089), 3 (-.048), 5 (-.248) and group 6 (-.051) (negative values). All of the five functions were used to classify the group membership in a multidimensional calculation to find the closest discriminant score to the group centroids.

E-commerce Adoption Level (ECAL)	Function				
	1	2	3	4	5
1. Not connected to the internet and no email	-5.132	.498	-.726	.016	.055
2. Connected to the internet with email but no website	-2.844	-.004	.531	-.198	-.089
3. Static web, that is publishing basic company information on the web without any interactivity	.065	-.630	.024	.662	-.048
4. An interactive web presence, that is accepting queries, email, and form entry from users	2.782	-.300	.073	-.175	.365
5. The transactive web, that is online selling and purchasing of products and services including customer service	5.268	-.477	-.574	-.368	-.248
6. Fully integrated website allowing most of the business transactions to be conducted electronically	6.986	1.515	.267	.277	-.051

Table 5.18. Functions at group centroids

Structure Matrix (Discriminant loading)

The structure matrix (Table 5.19) shows the correlations of each variable with each discriminant function. These correlations are called structure coefficients or discriminant loadings. It is considered more accurate than the standardised canonical discriminant function coefficients, so most researchers tend to use these. Moreover, the minimum accepted discriminant loading value to indicate the importance of an independent variable is $r = 0.30$ (Poulsen & French, 2008). This means that loadings with less than this cut-off of 0.30 are considered to have no contribution to the discriminant function. Based on the structure matrix in Table 5.19, all of the independent variables were strongly associated with discriminant function 1. In terms of group membership predictability, the order is organisational awareness first ($r = .836$), followed by human resources ($r = .830$), business resources ($r = .826$), technological resources ($r = .821$), organisational commitment ($r = .820$), organisational governance ($r = .805$), market force e-readiness ($r = .792$), government e-readiness ($r = .743$), and finally supporting industries' e-readiness ($r = .698$). Moreover, no independent variables were strongly associated with discriminant function 2, 3, 4 nor 5 in terms of group membership predictability.

	Function				
	1	2	3	4	5
Organisational Awareness (OA)	.836*	-.034	-.111	.024	-.247
Human Resources (HR)	.830*	.227	.105	-.296	.094
Business Resources (BR)	.826*	.079	.036	-.220	-.189
Technological Resources (TR)	.821*	.043	-.030	.060	-.339
Organisational Commitment (OC)	.820*	-.005	.518	.215	-.093
Organisational Governance (OG)	.805*	-.054	-.073	.378	.330
Market Force E-readiness (MFER)	.792*	.368	-.045	.085	.113
Government E-readiness (GER)	.743*	.193	.199	-.220	.178
Supporting Industries' E-readiness (SIER)	.698*	.593	.048	.213	-.204
Pooled within-groups correlations between discriminating variables and standardised canonical discriminant functions. Variables ordered by the absolute size of correlation within the function.					

Table 5.19. Structure matrix

Prior Probabilities for Groups

The term proportional by chance accuracy rate is the proportion classification expected by chance (Hair, 2010). So, in order to assess the usefulness of the discriminant model described above, the proportional by chance accuracy rate has been computed from Table 5.20 ($.170^2 + .295^2 + .162^2 + .164^2 + .125^2 + .084^2$) $\times 100 = 19.17\%$. Based on the requirement that the model's accuracy must be 25% better than the chance criteria (Poulsen & French, 2008), a 25% increase over the calculated proportionally by chance accuracy rate would require the cross-validated accuracy to be at least $1.25 \times 19.17\% = 23.97\%$. The cross-validated accuracy rate in this study computed by SPSS was 86.3%, which was greater than the proportional by chance accuracy criteria of 23.97%. In other words, the standard cross-validated accuracy to be used for comparing the model's accuracy is $1.25 \times 19.17\% = 23.97\%$, whereas the cross-validated accuracy rate (86.3%) exceeded this standard.

According to Brown and Wicker (2000), discriminant analysis requires that the number of cases in the smallest group must be larger than the number of independent variables, and preferably contain 20 or more cases, otherwise discriminant analysis cannot be used. The number of cases in the smallest group in this study is 41, which is larger than the number

of independent variables (9), thus satisfying the minimum requirement. Furthermore, the number of cases in the smallest group (41 cases) satisfies the preferred minimum of 20.

E-commerce Adoption Level (ECAL)	Prior	Cases Used in Analysis
1. Not connected to the Internet and no email	.170	83
2. Connected to the Internet with email but no web site	.295	144
3. Static web, that is publishing basic company information on the web without any interactivity	.162	79
4. An interactive web presence, that is accepting queries, email and form entry from users	.164	80
5. The transactive web, that is online selling and purchasing of products and services including customer service	.125	61
6. Fully integrated website allowing most of the business transactions to be conducted electronically	.084	41
Total	1.000	488
86.3% of original grouped cases correctly classified.		
85.7% of cross-validated grouped cases correctly classified.		
Cross-validation is done only for those cases in the analysis. In cross-validation, each case is classified by the functions derived from all cases other than that case.		

Table 5.20. Prior probabilities for groups

Classification Results (Confusion Matrix) and Cross-validation

From Table 5.21, the evaluation of the classification accuracy of the discriminant model can be obtained by dividing the sum of correctly predicted values (grey highlighted values in Table 5.21) by the total number of responses (Poulsen & French, 2008). So, $(75+126+70+62+52+36) \div 488 \times 100 = 86.3\%$ of original group cases have been correctly classified. Table 5.21 also shows that discriminant function (DF) correctly predicted 75 cases from group 1 out of 83 original cases, representing 90.4% accuracy. From the second group, the DF correctly predicted 126 cases from 144 original cases, representing 87.5% accuracy. Also, the DF correctly predicted 70 out of 79 original cases from group three with 88.6% accuracy. The DF correctly predicted 62 out of 80 original cases from group four with 77.5% accuracy. Also, the DF correctly predicted 52 out of 61 original cases from group five with 85.2% accuracy. Finally, from group six, the DF correctly predicted 36 cases out of 41 original cases, representing 87.8% accuracy. The discriminant model can be established by using cross-validation procedures (Burns & Burns, 2008; Poulsen & French, 2008). In this procedure, using the 'leave-one-out method', the sample is divided into two parts: the sample used in the analysis of the discriminant model and the holdout case used to validate the results (Burns & Burns, 2008). In other words, each case is classified by the functions derived from all cases other than that case. From Table 5.21,

85.7% of cross-validated group cases have been correctly classified. Therefore, this result is further support for the classification accuracy of the discriminant model.

		E-commerce Adoption Level (ECAL)	Predicted Group Membership						Total
			1	2	3	4	5	6	
Original	Count	1	75	8	0	0	0	0	83
		2	11	126	7	0	0	0	144
		3	0	5	70	4	0	0	79
		4	0	0	7	62	6	5	80
		5	0	0	0	3	52	6	61
		6	0	0	0	1	4	36	41
	%	1	90.4	9.6	0.0	0.0	0.0	0.0	100.0
		2	7.6	87.5	4.9	0.0	0.0	0.0	100.0
		3	0.0	6.3	88.6	5.1	0.0	0.0	100.0
		4	0.0	0.0	8.8	77.5	7.5	6.3	100.0
		5	0.0	0.0	0.0	4.9	85.2	9.8	100.0
		6	0.0	0.0	0.0	2.4	9.8	87.8	100.0
Cross-validated	Count	1	75	8	0	0	0	0	83
		2	11	126	7	0	0	0	144
		3	0	5	70	4	0	0	79
		4	0	0	7	62	6	5	80
		5	0	0	0	4	51	6	61
		6	0	0	0	1	6	34	41
	%	1	90.4	9.6	0.0	0.0	0.0	0.0	100.0
		2	7.6	87.5	4.9	0.0	0.0	0.0	100.0
		3	0.0	6.3	88.6	5.1	0.0	0.0	100.0
		4	0.0			77.5	7.5	6.3	100.0
		5	0.0			6.6	83.6	9.8	100.0
		6	0.0	5.3	25.3	2.4	14.6	82.9	100.0
86.3% of original grouped cases correctly classified. Cross-validation is done only for those cases in the analysis. In cross-validation, each case is classified by the functions derived from all cases other than that case. 85.7% of cross-validated grouped cases correctly classified.									

Table 5.21. Classification results (confusion matrix)

5.1.11. Conclusion

This chapter has presented data analysis results of SMEs' perspective where the objective was to investigate the current status of e-shopping in Saudi Arabia and to identify the factors affecting the e-commerce adoption level. The factors which were considered were organisational awareness, human resources, business resources, technological resources, organisational commitment, organisational governance, market force e-readiness, government e-readiness, and supporting industries' e-readiness.

The chapter began with an introduction to model construction, the research hypotheses, and descriptive data analysis including the demographic profile of the collected sample of 488 survey responses collected from Saudi SMEs. Next, the results of a preliminary analysis of the collected data were presented using ANOVA, log determinants, and Box's M test. Finally, the results of the discriminant analysis including canonical discriminant functions which include eigenvalues, Wilk's lambda, standardised canonical discriminant coefficients, functions at group centroids, and structure matrix. Also, prior probabilities for groups and classification results (confusion matrix) including cross-validation were presented.

In summary, the results suggest that all nine hypotheses of SMEs' perspectives have been supported, and the relationships between all constructs and the adoption level have been statistically explained. Organisational awareness first at $r = .836$, followed by human resources ($r = .830$), business resources ($r = .826$), technological resources ($r = .821$), organisational commitment ($r = .820$), organisational governance ($r = .805$), market force e-readiness ($r = .792$), government e-readiness ($r = .743$), and finally supporting industries' e-readiness ($r = .698$).

Moreover, consumer awareness ($r = .825$) was the most important factor affecting Saudi consumer's use of e-shopping. This was followed by government e-readiness ($r = .942$), social factors ($r = .719$), supporting industries' e-readiness ($r = .673$), and retailers' e-readiness ($r = .667$).

5.2 introduction to Data Analysis of Consumer Perspective

This chapter presents the results of the consumer perspective data analysis where the objective was to investigate the current status of e-shopping in Saudi Arabia and to identify the factors affecting its usage level. The study was based upon a discriminant analysis of a sample of 525 survey responses collected from Saudi citizens (the consumer perspective sample). The consumer perspective represents one of the following four perspectives to be examined in terms of their influence on e-commerce adoption in Saudi Arabia: SMEs; perspective, consumer perspective, government perspective, and supporting industries' perspective.

It is essential to point out that for the analysis of customer perspective and the development of hypotheses, both primary and secondary methods were employed as in the primary research. A survey was executed to assess customer perspective, but the evidence for the perspective was drawn from the literature, and thus there were two main methodological implications for this research that contributed to the accuracy of the research.

In this chapter, the focus of the research is on the analysis of data gathered using a predesigned 'five construct' model and how these constructs affect the level of e-shopping from the Saudi consumer perspective. The constructs are consumer awareness (CA), social factors (SF), government e-readiness (GER), retailers' e-readiness (RER) and supporting industries' e-readiness (SIE). For each of these constructs, a specific questionnaire was designed to measure it using a construct-specific set of five-point Likert-scale questions.

The data analysis process is presented as a set of five steps. First, by way of reminder, the model construction and research hypotheses for the consumer perspective analysis are summarised, including reference to the survey questions relevant to each hypothesis. Second, data collection and data screening are presented. Next, a demographic analysis of the sample is provided using characteristic distributions and summary statistics, such as mean values and standard deviation to illustrate the make-up of the collected data. The quality and reliability of the data gathered were then

summarised using Cronbach's alpha to indicate how well the instrument items were positively correlated with each other within a construct. Next, the results of a preliminary analysis of the collected data are presented using ANOVA, log determinants, and Box's M test. Finally, the results of the discriminant analysis are provided, together with a discussion of the implications of these results in so far as they resolve the underlying objective of this study.

In short, the results suggest that all five hypotheses of the research supported the relationships between the five constructs and the usage level of e-shopping has been statistically explained. Moreover, the consumer awareness construct was the most important factor that affected Saudi consumers' use of e-shopping. This was followed by government e-readiness, social factors, supporting industries' e-readiness, and finally retailers' e-readiness.

5.2.1. Model construction and hypotheses of consumer perspective

The five research hypotheses of the consumer perspective study and the associated research model construction have been developed and discussed in detail in the previous chapters, with the latter summarised here in Figure 5.2 where

- consumers' e-shopping usage level (CESUL) is the dependent variable. It is a categorical variable that uses a four-point scale question to measure the frequency of e-shopping usage where no use = 1, rarely use = 2, sometimes use = 3, and often use = 4. These four categories were used in the discriminant analysis to divide the participants according to their responses to the question.
- the independent variables are the five constructs of the model: consumer awareness (measured by seven questionnaire items), social factors (measured by four questionnaire items), government e-readiness (measured by four questionnaire items), retailers' e-readiness (measured by two questionnaire items) and supporting industries' e-readiness (measured by five questionnaire items). These questionnaire items have been designed and developed in the 'Research Design' chapter and have been measured by using a five-point Likert scale, i.e. completely disagree = 1, disagree = 2, neutral = 3, agree = 4, and completely agree

= 5. To ensure that these items measured the constructs accurately, the researcher took several validation steps, which included an extensive review of the literature, an exploratory study to identify the potential factors affecting e-shopping adoption in Saudi Arabia, an academic peer review, and a two-way translation process given that the survey had been answered by Saudi residents and so had to be conducted in the Arabic language. Also, instrument piloting and a reliability test were applied.

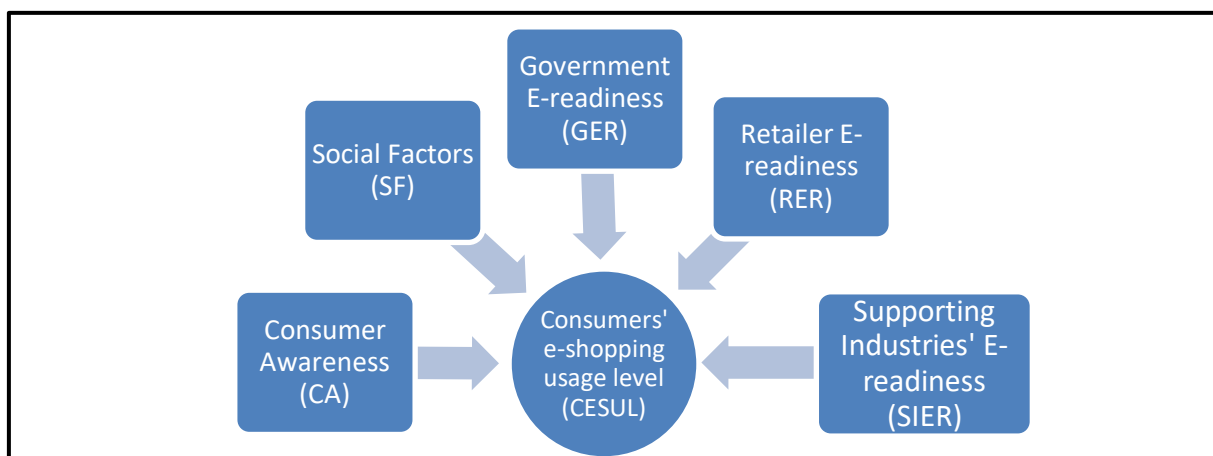


Figure 5.2. Model construction of consumer perspective

Compilation of the analytics in the evaluation of the different components, the outcomes were easily evident and quite easy to monitor. There was a need to establish a start-up, which was carried out in the course of compiling the evaluated progress. Certain appraisals were carried out in the course of a continuous measure of the progress.

5.2.2. Data collection and data screening

The target population for this part of the research was comprised of Saudi residents, which, at the time of writing of this report, consisted of around 21 million people according to the Central Department of Statistics & Information report (Burns & Burns, 2008), of whom around 15,945,576 are adults (Morrison, 1969), with gender proportions of 57% male and 43% female.

Since it was impossible to collect complete population data from such a large number of cases, the required data had to be collected from a sample but from a sample that would

be appropriate for inferring population results. This required focusing on two key aspects: generating a representative sample and generating a sample of adequate size.

A research involving 525 survey responses from Saudi citizens and 488 survey responses from Saudi SMES was conducted. This sample size is considered justified as generating the results from all the operating SMEs was not feasible, whereas this sample represents the considerable size of the market and thus ensures the accuracy of the data more effectively.

While conducting data analysis, data abstraction is also another significant factor, as it helps in removing any insignificant characteristics and only presents data with potential possibilities. The database abstraction was conducted layer upon layer considering all the available possibilities within the study.

5.2.3. Representative sample

In a situation where a questionnaire survey is being used to collect the required sample data and statistical tests are used to analyse the sample data to make inferences about the whole population, probability sampling is the most appropriate approach to ensure that a representative sample has been generated. Anderson et al. (2013) and Saunders et al. (2009) suggest that probability sampling is best carried out in four stages starting with a sampling frame. In this research, it was not possible to gain access to a definitive sampling frame for the entire Saudi adult population, and so an alternative strategy had to be adopted. According to Spencer (2013), when the population is extremely large and it is impossible to generate a sampling frame, statisticians recommend using a random sample in which two conditions must be satisfied when selecting the sample elements; that is, they must come from the same population and they must be independently selected. This suggestion of using random sample conformed to the second stage in which the sampling technique was selected.

Firstly, an online survey link was distributed on the most active Saudi discussion internet forums, and, secondly, hard copies of the survey were distributed in shopping centres in the largest four cities in Saudi Arabia—Riyadh (the capital city), Jeddah (the commercial capital of Saudi Arabia), Makkah Al-Mukarramah (the religious capital of Saudi Arabia and Islamic religion), and Al-Madinah Al-Munawarah (the second religious capital of

Islam). These cities are considered the largest four cities in Saudi Arabia where about 40% of the Saudi population lives (Brown & Wicker, 2000). Moreover, these four cities are considered the top shopping destinations in Saudi Arabia, where about 90% of retailers are located (Spencer, 2013). By using these two modes of survey distribution, the researcher is able to assume that the selection of cases was independent. In other words, there was no probability effect of any case selection on the selection of any other case (Field, 2009).

5.2.4. Adequate sample size

The next stage was to determine the required sample size, which the researcher has calculated using the well-established formula given in equation (1) below (Rea & Parker, 2014) and the most frequently used values for key parameters, i.e. a confidence interval or margin of error of 5% and a confidence level value of 1.96 for a 95% confidence level (Hair, 2010).

$$Sample\ Size = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)} \quad (2)$$

That is,

z = z value (in this case set at 1.96 for 95% confidence level),

e = confidence interval or margin of error, expressed as decimal (in this case set at, 0.05 = $\pm 5\%$),

N = actual population size (in this case 15,945,576),

p = proportion in a selected response category (in this case set at 0.5. p is unknown, but by setting $p = 0.5$ the value of $p(1-p)$ results in a sample size which will always be an overestimate of the same if the actual $p(1-p)$ had been used.

Using the parameters above, the required minimum sample size is 384 where this sample size will ensure that with 95% confidence any population proportion inferred from the sample will be in line within 0.05 of the true population proportion. However, once the data collection stage had been completed, 648 responses were initially

received. Once these had been checked, and 123 responses had been excluded due to missing data, the resulting sample consisted of 525 valid responses.

Since the collected sample number (525) was greater than the calculated required minimum number of responses (384), the level of accuracy of any results inferred from the data will be higher than that which would be achieved with the minimum sample number (384); that is, we can be more confident (i.e. 97.8%) that any proportion inferred from the sample will lie within the same error interval (0.05), or we can be just as confident (95%) that any proportion inferred from the sample will lie within an even smaller interval of (0.0428) of the true population proportion. The final stage of sampling and data collection suggested by CDSI (2011) was to check the representativeness of collected data. This check will be discussed in the next section.

5.2.5. Descriptive data analysis

To gain a better understanding of the data gathered, descriptive data analysis is presented in this section. The researcher examined the collected data to understand the sample's demographic profile (see 'Demographic profile' below) but also to provide insights into the distribution of the independent variables used in the discriminant analysis (see 'Descriptive data of model variables').

5.2.6. Demographic profile

To examine how well the data gathered constitute a representative sample of the targeted population, the demographic profile of the 525 respondents was examined by comparing sample proportions to the actual proportion in the Saudi population (Table 5.22). The table shows that the study sample covers diverse segments of adults in Saudi society and is in line with the expected distributions across these segments, especially in terms of the main demographic characteristics, such as gender, age, marital status, and education. Although there were no national statistics available for the remaining characteristics, such as occupation, having a postal address, having a credit card, internet usage in years, frequency of internet usage and the level of e-shopping usage, the data also show diverse coverage of various segments of the Saudi population.

	Demographic Data		Frequency	Percent %	Proportion of Saudi population
1	Gender	Male	315	60%	57%
		Female	210	40%	43%
Total			525	100%	100%
2	Age	16–21years	37	7%	14%
		21–35 years	272	51.8%	44%
		36–50 years	171	32.6%	30%
		Older than 50 years	45	8.6%	12%
Total			525	100%	100%
3	Marital Status	Single	154	29.3%	36%
		Married	351	66.9%	60%
		Divorced	17	3.2%	1%
		Widowed	3	0.6%	3%
Total			525	100%	100%
4	Education	Elementary	5	1%	16.5%
		Intermediate	19	3.6%	25.5%
		Secondary	104	19.8%	32.5%
		Bachelor's	316	60.2%	24%
		Master's	61	11.6%	1%
		PhD	20	3.8%	0.5%
Total			525	100%	100%
5	Occupation	Unemployed	18	3.4%	5.5%
		Student	106	20.2%	N/A
		Public sector employee	191	36.4%	N/A
		Private sector employee	113	21.5%	N/A
		Businessman/Businesswoman	13	2.5%	N/A
		Retired	26	5%	3.6%
		Housewife	58	11%	N/A
Total			525	100%	
6	Have a postal address	Have	195	37.1%	N/A
		Don't have	330	62.9%	N/A
Total			525	100%	N/A
7	Have a credit card	No	238	45.3%	N/A
		Yes	287	54.7%	N/A
Total			525	100%	N/A
8	Internet usage (years)	Don't use	10	1.9	N/A
		Less than 2 years	11	2.1%	N/A
		2–5 years	78	14.9%	N/A
		5–10 years	189	36%	N/A
		More than 10 years	237	45.1%	N/A
Total			525	100%	N/A
9	Frequency of internet usage	Don't use	10	1.9%	N/A
		Rarely	7	1.3%	N/A
		Often	113	21.5%	N/A
		Very often	395	75.2%	N/A
Total			525	100%	N/A
10	Level of e-shopping usage	I do not shop online	137	26.1%	N/A
		Rarely	118	22.5%	N/A
		Sometimes	226	43%	N/A
		Often	44	8.4%	N/A

Table 5.22. Demographic data

5.2.7. Descriptive data of independent variables

As mentioned earlier, discriminant analysis has been used to determine which independent variables are discriminants between the groups of the dependant variable (Burns & Burns, 2008; Poulsen & French, 2008; Tabachnick, 1996). Recall that in this research, the dependent variables are consumer awareness, social factors, government e-readiness, retailers' e-readiness, and supporting industries' e-readiness. Also, the dependent variable is consumers' e-shopping usage level (CESUL), which is a categorical/grouping variable that uses a four-point scale question to measure the frequency of e-shopping usage where no use = 1, rarely use = 2, sometimes use = 3, and often use = 4. These four categories have been used in the discriminant analysis to divide the participants according to their responses to the question, and so any conclusions drawn have been based upon the use of advanced statistical tests. Therefore, since the efficacy of these tests is highly dependent upon the quality of the underlying data, it is very important to examine this sample data at a basic level before proceeding with population inference and the use of any advanced statistical tests by descriptively analysing the sample data first to summarise the basic features of the collected data (CDSI, 2011). The proposed model, its constructs, and items have been summarised in (5.2.1), where it was mentioned that a five-point Likert scale has been used to measure the item responses. The highest possible expected value of the mean is 5, and so mean values between 3 and 4 are considered as relatively high and therefore indicative of a tendency towards agreement with the item question. Mean values between 2 and 3 are considered relatively low values and therefore indicative of a tendency towards disagreement with the item question, and finally mean values between 1 and 2 are considered as extremely low and therefore indicative of a tendency towards strong disagreement with the item question.

In Table 5.23, the means of the consumer awareness items are presented. It can be seen there that the mean of item 1 (4.26) indicates that most participants believe that e-shopping makes life easier. Also, the means of item 2 (3.74) and item 3 (3.92) are relatively high, indicating that many participants believe that they have good knowledge about e-shopping advantages and threats and believe that they have good e-skills to

shop online. This means that these participants feel qualified to use e-shopping and believe that e-shopping helps them in their daily lives. However, items 4 and 5 both have the same relatively low mean (2.88), which suggests that the Saudi consumer believes that the media and educational curricula do not promote good knowledge and awareness in terms of new technologies, such as e-skills and e-shopping. On the other hand, the mean for item 6 (3.28) regarding trust and information security precautions that can protect against internet fraud and deception is higher. Finally, for item 7, there is a relatively high mean (3.33), offering a relatively high indication that the participants read the terms and conditions of sale.

Consumer Awareness	Mean	Std. Deviation
1) I believe that e-shopping makes life easier.	4.26	.907
2) I have good knowledge about e-shopping advantages and threats.	3.74	1.095
3) I have good e-skills to use the computer and internet to shop online.	3.92	1.074
4) I believe that the media in Saudi Arabia (TV, radio, and newspapers) provide useful e-shopping enlightenment.	2.88	1.271
5) I believe that we have good educational curricula that promote our knowledge in terms of new technologies, such as e-skills and e-shopping.	2.88	1.297
6) I believe that I have good knowledge of trust and information security precautions that can protect me against internet fraud and deception.	3.28	1.229
7) Every time I visit a new online shopping website to make a purchase, I read its sales terms and conditions first.	3.33	1.251

Table 5.23. Consumer awareness

In Table 5.24, the means of the social factors construct items are presented. It can be concluded from the mean of item 1 (4.31), that most of the participants believed that knowing the English language is essential to use e-shopping websites. Also, the mean of item 2 (3.75) is relatively high, indicating that many participants prefer physical shopping over purchasing their goods online. The relatively low mean of item 3 (2.83) suggests that participants do not believe that using online shopping is affected by Islamic religious rules, such as financial and credit card issues. Item 4 has a relatively high mean of 3.71, which indicates that many participants trust only websites that have been recommended to them by their friends or relatives.

Social Factors	Mean	Std. Dev.
1) I think knowing the English language is essential to use e-shopping websites.	4.31	.919
2) I prefer physical shopping rather than purchasing my goods online.	3.75	1.055
3) I do not use online shopping because of some Islamic religious rules, such as those related to financial and credit card issues.	2.83	1.250
4) I only use online shopping websites that been recommended to me by my friends or relatives.	3.71	1.122

Table 5.24. Social factors

Table 5.25 presents the means of the government e-readiness construct items. It shows that the means for all the items are relatively high, indicating that many participants believe that there are effective laws to protect consumer privacy, there are effective laws to combat cybercrime, the legal environment is conducive to conducting e-shopping, and the government demonstrates a strong commitment to promoting e-shopping.

Government E-readiness	Mean	Std. Deviation
1) I believe that there are effective laws to protect consumer privacy.	3.05	1.196
2) I believe that there are effective laws to combat cybercrime.	3.17	1.181
3) I believe that the legal environment is conducive to conduct e-shopping.	3.12	1.182
4) I believe that the government demonstrates a strong commitment to promoting e-shopping.	3.06	1.110

Table 5.25. Government e-readiness

The results in Table 5.26 show the means of the retailers' e-readiness construct subitems. The table indicates that the means of both items are relatively high at 3.37 and 3.40, again indicating that many participants believe that Saudi retail companies are ready to offer online store websites and that many Saudi companies are offering online shopping websites.

Retailers E-readiness	Mean	Std. Deviation
1) I believe that Saudi retail companies are ready to offer online stores websites.	3.37	1.047
2) Many Saudi companies are offering online shopping websites.	3.40	1.054

Table 5.26. Retailers e-readiness

The item means of the supporting industries' e-readiness construct are presented in Table 5.27. These show that the means of all items are relatively high (between 3.33 and 3.80), indicating that many participants believe that the telecommunication services are reliable and efficient to promote e-shopping use, that the telecommunication services provided to individuals are very inexpensive given their high quality, that the technology infrastructure of commercial and financial institutions (companies and banks) are capable of supporting e-shopping transactions, that banking services provided by Saudi commercial banks are sufficiently reliable and efficient to support e-shopping, and that the Saudi postal system and services are sufficiently reliable and efficient to support e-commerce and e-business.

Supporting Industries' E-readiness	Mean	Std. Deviation
1) I believe that the telecommunication services are reliable and efficient to promote e-shopping use.	3.59	.987
2) I believe that the telecommunication services provided to individuals are very inexpensive given their high quality.	3.33	1.116
3) I believe that the technology infrastructure of commercial and financial institutions (companies and banks) is capable of supporting e-shopping transactions.	3.80	.987
4) I believe that the banking services provided by Saudi commercial banks are sufficiently reliable and efficient to support e-shopping.	3.78	.979
5) I believe that the Saudi postal system and services are reliable and efficient enough to support e-commerce and e-business.	3.41	1.210

Table 5.27. Supporting industries' e-readiness

5.2.8. Quality of data gathered using Cronbach's alpha

The reliability of the survey questionnaire instrument was then tested using Cronbach's alpha to measure internal consistency. Consistency indicates how well the construct items are positively correlated with each other. Table 5.28 shows the results of Cronbach's alpha test, where it can be seen that the coefficients of the items of each construct have relatively high internal consistency. The values shown in the 'Cronbach's alpha' column use the inter-item covariances, whereas the values shown in the 'Cronbach's alpha based on standardised items' column use the inter-item correlations. The latter alpha was based on the assumption that all of the items had equal variances, which is often false in practice. So, for this study, the focus was on the first column, namely Cronbach's alpha. George and Mallery (2009, p. 231) suggested a guideline for categorisation of the alpha coefficient value, where > 0.9 is considered excellent, > 0.8 is considered good, > 0.7 is considered acceptable, > 0.6 is considered questionable, > 0.5 is considered poor, and < 0.5 is considered unacceptable. The Cronbach's alpha values were within the acceptable and excellent range, i.e. consumer awareness = .847, government e-readiness = .913, retailers' e-readiness = .754, and supporting industries' e-readiness = .802. The social factor construct was the only construct with a low value of 0.59, which is considered poor, although this may be explained by the fact that the three items which make up this construct have been designed to measure three different aspects which are not necessarily correlated (Anderson et al., 2013). This means that the constructs can be applied to the analysis with acceptable reliability (ArabiaWeather, 2013).

Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
Consumer Awareness	.847	.849	7
Social Factors	.589	.587	4
Government E-Readiness	.913	.913	4
Retailers' E-Readiness	.754	.754	2
Supporting Industries' E-Readiness	.802	.811	5

Table 5.28. Alpha coefficient

5.2.9. Preliminary analysis: ANOVA, log determinants, and Box's M test

As will be discussed later in this chapter, discriminant analysis was used to predict group membership via the predicted value of a dependent variable where the latter is derived from the observed values of several independent variables (CDSI, 2011). In this study, the dependent variable is consumer e-shopping usage (CESL) and the independent variables are consumer awareness, social factors, government e-readiness, retailer e-readiness, and supporting industries' e-readiness. So, to proceed with the statistical analysis, it is important to confirm that for every independent variable (i.e. construct), there are significant differences in its mean values across the different groups (as defined by the observed values of the dependent variable CESUL). (Table 5.29 shows these groups mean values, and Table 5.30 shows the results of the ANOVA test for differences in group means).

In Table 5.29, a simple inspection of the group means (and standard deviations) provides an idea of the likely importance of the independent variables in terms of their ability to predict group membership, e.g. the difference in group means of the consumer awareness construct suggests that the consumer awareness construct might be a good discriminator of consumer e-shopping group membership, as these variations are large as is the case with the difference in group means of the social factor construct, which also suggests that the social factor construct might be a good discriminator of consumer e-shopping group membership. This inspection can be applied to all of the independent variables in Table 5.29, from which it can be seen that discriminant analysis is likely to yield fruitful results.

Consumers' e-shopping usage level (CESUL)		Mean	Std. Deviation	Valid N (listwise)
DO NOT USE	Consumer Awareness	12.48	3.908	52.000
	Social Factors	13.90	2.234	52.000
	Governmental E-readiness	9.81	3.565	52.000
	Retailers' E-readiness	5.33	1.823	52.000
	Supporting Industries' E-readiness	16.56	3.058	52.000
RARELY	Consumer Awareness	24.76	4.315	198.000
	Social Factors	15.09	2.284	198.000
	Governmental E-readiness	10.75	4.476	198.000
	Retailers' E-readiness	6.48	1.948	198.000
	Supporting Industries' E-readiness	16.44	4.462	198.000
OFTEN	Consumer Awareness	26.89	4.055	200.000
	Social Factors	15.66	2.333	200.000
	Governmental E-readiness	14.63	2.889	200.000
	Retailers' E-readiness	7.56	1.438	200.000
	Supporting Industries' E-readiness	19.47	2.926	200.000
VERY OFTEN	Consumer Awareness	24.33	5.076	75.000
	Social Factors	10.97	3.361	75.000
	Governmental E-readiness	12.53	3.535	75.000
	Retailers' E-readiness	6.43	1.911	75.000
	Supporting Industries' E-readiness	18.64	3.773	75.000
Total	Consumer Awareness	24.29	5.905	525.000
	Social Factors	14.60	2.925	525.000
	Governmental E-readiness	12.39	4.160	525.000
	Retailers' E-readiness	6.77	1.882	525.000
	Supporting Industries' E-readiness	17.92	3.957	525.000

Table 5.29. Group statistics

The conclusions drawn from the inspection of Table 5.29 were further corroborated by the ANOVA tests of equality of group means in Table 5.30, where if the F statistic corresponding to Wilk's lambda is statistically significant, it can be concluded that there are relationships between the dependent groups and the independent variables, and the lower the Wilks' lambda, the more important the independent variable is likely to be of the discriminant function (Mark Saunders et al., 2009). Table 5.30 shows that all independent variables are statistically significant ($p < .05$) and that consumer awareness

(Wilks' lambda = .527) is the most important independent variable, followed by social factors (Wilks' lambda = .714), government e-readiness (Wilks' lambda = .792), retailers' e-readiness (Wilks' lambda = .861), and finally with Wilks' lambda = .872, supporting Industries is the least important to the discriminant function.

Taking the results of Table 5.29 and Table 5.30 in combination suggests that the independent variables when taken together will provide a good prediction of group membership via the predicted value of the dependent variable—in other words, that the constructs, when taken together, might provide a good prediction of group membership via the predicted value of CESUL.

	Wilks' Lambda	F	df1	df2	Sig.
Consumer Awareness	.527	156.015	3	521	.000
Social Factors	.714	69.495	3	521	.000
Governmental E-readiness	.792	45.613	3	521	.000
Retailers' E-readiness	.861	27.925	3	521	.000
Supporting Industries' E-readiness	.872	25.403	3	521	.000

Table 5.30. Tests of equality of group means (ANOVA)

According to Burns and Burns (2013) "In DA (Discriminant Analysis), the basic assumption is that the variance–co-variance matrices are equivalent. Box's M tests the null hypothesis that the covariance matrices do not differ between groups formed by the dependent" (p. 598). This means that the values of log determinant should be nearly equal and Box's M test should be non-significant to show similarity and lack of significant differences between the groups. This provides a good indication that discriminant analysis as applied to this data is appropriate for the study (Saunders et al., 2009). Moreover, the values of log determinants (Table 5.31) are close to being equal, which indicates that this analysis is appropriate and the researcher was therefore able to proceed with the analysis.

E-shop Adoption	Rank	Log Determinant
Do Not Use	4	8.417
Rarely	4	8.858
Sometimes	4	8.815
Often	4	9.603
Pooled within groups	4	8.482

Table 5.31. Log determinants

On the other hand, Box's M Tests null hypothesis of equal population covariance matrices. From table 5.32; Box's M is 177.863, F 5.811, and Sig .000 which implies that the test result is significant and the groups differ in their covariance. However, according to Burns and Burns (2007), when the sample is large (525 responses), a non-significant result of Box's M Tests is not necessarily required. This means that the researcher can proceed with discriminant analysis.

Box's M		177.863
F	Approx.	5.811
	df1	30
	df2	142224.774
	Sig.	.000
Tests null hypothesis of equal population covariance matrices.		

Table 5.32. Box's M test results

5.2.10. Discriminant analysis

Discriminant analysis can be defined as a statistical technique used to determine which independent variables are discriminant between the groups of the dependent variable (Burns & Burns, 2008; George & Mallery, 2003; Sekaran, 2006). Essentially, several independent variables have been included in the analysis to find the ones which contribute to the discrimination between the groups by creating a linear equation which, when applied to the independent variables, predict group membership (Burns & Burns, 2008). By knowing this equation, it is possible to predict a classification based on the independent variables and/or to assess how well the independent variables separate the groups of the dependent variable. Therefore, discriminant function analysis has been used in this research that explores the relationship between a set of independent variables (CA, SF, GER, RER, and SIER) and one grouping/categorical dependent variable (CESUL).

In discriminant analysis, the independent variables are often called predictors, as they are used to predict group membership via the grouping/dependent variable by using the resulting discriminant model and its discriminant linear equation and discriminant functions (Burns & Burns, 2008). With this in mind, the following subsections present the

results of the discriminant analysis using SPSS output tables, such as canonical discriminant functions, which include eigenvalues, Wilk's lambda, standardised canonical discriminant coefficients, unstandardised canonical discriminant coefficients, functions at group centroids, and structure matrix (discriminant loading). Also, prior probabilities for groups, classification results (confusion matrix), and cross-validation will be presented.

Canonical Discriminant Functions

The first step when applying discriminant function analysis is to find the statistical significance of the relationship between the independent variables and the dependent variable (Burns & Burns, 2008). This can be found in the 'Summary of Canonical Discriminant Functions' in SPSS outputs, which will be presented in the following subsections, namely eigenvalues, Wilk's lambda, standardised canonical discriminant coefficients, unstandardised discriminant function coefficients, functions at group centroids, and finally structure matrix (discriminant loading).

Eigenvalues

Table 5.33 shows information about the efficiency of the discriminant functions. According to Brown and Wicker (2008), eigenvalues indicate the ratio of between-groups variability to within groups variability for a function. The larger the eigenvalue, the better the independent variables are at accounting for the group differences (p. 223). In other words, large eigenvalues mean that the discriminant function is more useful in distinguishing between the dependent variable groups. Eigenvalues are always listed in descending order: the first discriminant function is the most capable in terms of differentiating the groups; the second discriminant function is the second most useful function, and so on. The number of discriminant functions is equal to the number of dependent variable groups minus one (Tabachnick, 1996). So, in Table 5.33, there are three discriminant functions (since there are 4 groups). Table 5.33 also shows the canonical correlation coefficient values which measure the relationship between the independent variables and the dependent variable. These values show that function one has the strongest relationship between the independent variables and the dependent

variable, followed by function two, and so on with function three having the weakest relationship.

Canonical Correlation 1 = $0.743^2 = 0.55 = 55\%$, and so 55% of the between-group variability is explained by the first discriminant function.

Canonical Correlation 2 = $0.623^2 = 0.39 = 39\%$, and so 39% of the between-group variability is explained by the second discriminant function.

Canonical Correlation 3 = $0.413^2 = 0.17 = 17\%$, and so 17% of the between-group variability is explained by the third discriminant function.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	15.900 ^a	95.7	95.7	.970
2	.347 ^a	2.1	97.8	.507
3	.224 ^a	1.3	99.1	.428
4	.112 ^a	.7	99.8	.318
5	.033 ^a	.2	100.0	.180

Table 5.33. Eigenvalues

From the above calculations and Table 5.34, it can be seen that 55% of between-group variability is explained by the first discriminant function that makes up 59.4% (see % of variance column) of the amount of between-group variance that the three modelled functions are together able to explain. Of the between-group variability, 39% is explained by the second discriminant function, which makes up 30.7% (see % of variance column) of the amount of between-group variance that the three modelled functions are together able to explain. Finally, 17% of the between-group variability is explained by the third discriminant function, which makes up 9.9% (see % of variance column) of the amount of between-group variance that the three modelled functions are together able to explain.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.232 ^a	59.4	59.4	.743
2	.635 ^a	30.7	90.1	.623
3	.206 ^a	9.9	100.0	.413

Table 5.34. Three canonical discriminant functions used in the analysis

Wilks' Lambda

The lower the Wilk's lambda value, the more the independent variable contributes to the discriminant analysis. Also, Wilks' lambda is the proportion of the total variance in the discriminant scores not explained by differences among the groups (Burns & Burns, 2008). From table 5.35, the direct analysis identified 3 discriminant functions that are statistically significant, which explains the group members well. Table 5.35 shows that 22.7% of the variance between groups is not explained by function one, 50.7% is not explained by function two, and 82.9% of the variance is not explained by function three.

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 3	.227	770.587	12	.000
2 through 3	.507	353.065	6	.000
3	.829	97.263	2	.000

Table 5.35. Wilks' lambda

Standardised Canonical Discriminant Coefficients

The standardised canonical discriminant coefficients are used to rank the importance of each variable within a given discriminant function (see table 5.36). Moreover, a high standardised discriminant function variable coefficient of the variable means that the variable has greater discriminating ability. Function one is always the most powerful differentiating dimension (Poulsen & French, 2008). The sign of the values of the variable coefficients in the standardised discriminant function indicates the direction of the relationship, for example, in Table 5.36, the sign of CA in function 1 is positive, which means that any increase in the value of this variable leads to an increase in function 1, while the sign of the coefficient value for the same variable CA in function 3 is negative, which means that an increase in the value of this variable leads to a decrease in function 3. Also, from Table 5.36, it can be concluded that the most important variable in distinguishing the groups in function one is consumer awareness (1.370), followed by supporting industries' e-readiness (-.441), retailers' e-readiness (-.418), government e-readiness (-.356), and finally social factors (-.149). In function two, the order of the variable importance is social factors first (1.156), followed by government e-readiness (-.565), retailers' e-readiness (-.450), supporting industries' e-readiness (.312), and finally consumer awareness (.007). In function three, the order is government e-readiness

(.841) first, then supporting industries' e-readiness (-.775), social factors (.328), consumer awareness (-.273), and finally retailers' e-readiness (.173).

	Function		
	1	2	3
Consumer Awareness	1.370	.007	-.273
Social Factors	-.149	1.156	.328
Governmental E-readiness	-.356	-.565	.841
Retailers E-readiness	-.418	-.450	.173
Supporting Industries' E-readiness	-.441	.312	-.775

Table 5.36. Standardised canonical discriminant function coefficients

Unstandardised discriminant function coefficients

Unstandardised discriminant function coefficients are used to construct the actual prediction equation, which can then be used to classify new cases (see equation 2).

$$D = v_1 X_1 + v_2 X_2 + v_3 X_3 = \dots\dots\dots v_i X_i + a \quad (2)$$

Where D = discriminate function

v = the discriminant coefficient or weight for that variable

X = respondent's score for that variable

a = a constant

i = the number of predictor variables

From Table 5.37, it can therefore be seen that the discriminant functions for the model are given by the following equations:

Discriminant function 1 = (.316) CA + (-.069) SF + (-.106) GER + (.059) RER + (-.117) SIER - 3.652

Discriminant function 2 = (.003) CA+ (.468) SF + (-.150) GER + (-.014) RER + (-.121) SIER - 2.795

Discriminant function 3 = (-.061) CA + (.136) SF + (.232) GER + (-.029) RER + (.048) SIER - 4.031

where CA = consumer awareness score, RER = retailers' e-readiness score, SIER = supporting industries' score, GER = government e-readiness score, and SF = social factors score.

Canonical Discriminant Function Coefficients	Function		
	1	2	3
Consumer Awareness	.316	.003	-.061
Social Factors	-.069	.468	.136
Governmental E-readiness	-.106	-.150	.232
Retailers' E-readiness	.059	-.014	-.029
Supporting Industries' E-readiness	-.117	-.121	.048
(Constant)	-3.652	-2.795	-4.031

Table 5.37. Unstandardised coefficients

Functions at Group Centroids

The term 'functions at group centroids' refers to the group means of the independent variables, and these means are used to describe each group in terms of its profile (Tabachnick, 1996). Table 5.38 shows the group centroids for each group, which helps to determine to which group a new case belongs. These centroids can be used as a predictor guide to predicting the group membership classification of a new case depending on its calculated discriminant score using equation 2. For example, if the score on discriminant function 1 is closer to -3.321, then the case belongs to the group of those who do not shop online, whereas if the score on discriminant function 2 is closer to -1.800, then the case belongs to the group who often shop online, and if a new case has a score of .443 in discriminant function 1, this means that this case is almost belonging to the group of people who rarely use e-shopping so on. Moreover, from Table 5.38, function 1 separates respondents who rarely shop online (.443), sometimes shop online (.375), and those who often shop online (.135) (positive values) from respondents who do not shop online (-3.321) (negative value). Function 2 separates respondents who rarely shop online (.657) and those who do not shop online (.214) (positive values) from respondents who sometimes shop online (-.032), and those who very often shop online (-1.800) (negative values). Function 3 separates respondents who do not shop online (.010) and who sometimes shop online (.555) (positive values) from respondents who rarely shop online (-.406) and respondents who very often shop online (-.416) (negative values). All of the three functions have therefore been used to classify the group membership in a multidimensional calculation to find the closest discriminant score to the group centroids.

E-shop adoption	Function		
	1	2	3
Do Not Use	-3.321	.214	.010
Rarely	.443	.657	-.406
Sometimes	.375	-.032	.555
Often	.135	-1.800	-.416

Table 5.38. Functions at group centroids

Structure Matrix (Discriminant Loading)

The structure matrix (Table 5.39) shows the correlations of each variable with each discriminant function. These correlations are called structure coefficients or discriminant loadings. They are considered more accurate than the standardised canonical discriminant function coefficients, so most researchers tend to use these. Moreover, the minimum accepted discriminant loading value to indicate the importance of an independent variable is $r = 0.30$ (Poulsen & French, 2008). This means that loadings with less than this cut-off of 0.30 are considered to have no contribution to the discriminant function. Based on the structure matrix Table 39, the independent variables are strongly associated with discriminant function 1; consumer awareness is associated with group membership predictability ($r = .825$). No independent variables were strongly associated with discriminant function 2 in terms of group membership predictability. Finally, independent variables strongly associated with discriminant function 3 in terms of group membership predictability were government e-readiness ($r = .942$), social factors ($r = .719$), supporting industries' e-readiness ($r = .673$) and retailers' e-readiness ($r = .667$).

DV	Functions		
	1	2	3
E-shop adoption			
Consumer Awareness	.825*	-.065	.528
Government E-Readiness	.198	-.225	.942*
Social Factors	.129	.656	.719*
Supporting Industries' E-Readiness	.096	-.257	.673*
Retailers' E-Readiness	.196	-.009	.667*
*Pooled within-groups correlations between discriminating variables and standardised canonical discriminant function variables ordered by the absolute size of correlation within a function.			
*Largest absolute correlation between each variable and any discriminant function			

Table 5.39. Structure matrix

Prior Probabilities for Groups

The term 'proportional by chance accuracy rate' is the proportion classification expected by chance (Hair, 2010). So, to assess the usefulness of the discriminant model described above, the proportional by chance accuracy rate has been computed from Table 5.40: $(.099^2 + .377^2 + .381^2 + .143^2) \times 100 = 31.7\%$. Based on the requirement that the model's accuracy must be 25% better than the chance criteria (Poulsen & French, 2008), a 25% increase over the calculated proportionally by chance accuracy rate would require the cross-validated accuracy to be at least $(1.25 \times 31.7\% = 39.69\%)$. The cross-validated accuracy rate in this study computed by SPSS was 73.0%, which was greater than the proportional by chance accuracy criteria of 39.69%. In other words, the standard cross-validated accuracy to be used for comparing the model's accuracy was $(1.25 \times 31.7\% = 39.69\%)$, whereas the cross-validated accuracy rate of 73.0% of this study exceeds this standard.

According to Brown and Wicker (2000), discriminant analysis requires that the number of cases in the smallest group must be larger than the number of independent variables and preferably contain 20 or more cases. Otherwise discriminant analysis cannot be used.

The number of cases in the smallest group in this study is 52, which is larger than the number of independent variables (5), thus satisfying the minimum requirement. Furthermore, the number of cases in the smallest group (52 cases) satisfies the preferred minimum of 20.

E-shop adoption	Prior	Cases Used in Analysis
Do Not Use	.099	52.000
Rarely	.377	198.000
Sometimes	.381	200.000
Often	.143	75.000
Total	1.000	525.000
73.5% of original grouped cases correctly classified.		
73.0% of cross-validated grouped cases correctly classified.		
Cross-validation is done only for those cases in the analysis. In cross-validation, each case is classified by the functions derived from all cases other than that case.		

Table 5.40. Prior probabilities for groups

Classification Results (Confusion Matrix) and Cross-validation

From Table 5.41, the evaluation of the classification accuracy of the discriminant model can be obtained by dividing the sum of correctly predicted values (grey highlighted values in Table 5.41) by the total number of responses (Poulsen & French, 2008). So, $(47+131+157+51) \div 525 \times 100 = 73.0\%$ of original group cases have been correctly classified. Table 5.41 also shows that discriminant function (DF) correctly predicted 47 cases that do not use e-shopping out of 52 original cases, representing 90.4% accuracy. From the second group (rarely use e-shopping), the DF correctly predicted 131 cases from 198 original cases, representing 66.2% accuracy. Also, the DF correctly predicted 157 out of 200 original cases from group three (sometimes use e-shopping) with 78.5% accuracy. Finally, from group four (often use e-shopping), the DF correctly predicted 51 cases out of 75 original cases, representing 68% accuracy.

		Usage level	Predicted Group Membership				Total
			Do Not Use	Rarely	Sometimes	Often	
Original	Count	Do Not Use	47	2	3	0	52
		Rarely	1	131	64	2	198
		Sometimes	0	35	157	8	200
		Often	2	4	18	51	75
	%	Do Not Use	90.4	3.8	5.8	.0	100.0
		Rarely	.5	66.2	32.3	1.0	100.0
		Sometimes	.0	17.5	78.5	4.0	100.0
		Often	2.7	5.3	24.0	68.0	100.0
Cross-validated	Count	Do Not Use	47	2	3	0	52
		Rarely	1	131	64	2	198
		Sometimes	0	36	155	9	200
		Often	2	4	19	50	75
	%	Do Not Use	90.4	3.8	5.8	.0	100.0
		Rarely	.5	66.2	32.3	1.0	100.0
		Sometimes	.0	18.0	77.5	4.5	100.0
		Often	2.7	5.3	25.3	66.7	100.0

73.5% of original grouped cases correctly classified.
 Cross-validation is done only for those cases in the analysis. In cross-validation, each case is classified by the functions derived from all cases other than that case.
 73.0% of cross-validated grouped cases correctly classified.

Table 5.41. Classification results (confusion matrix)

Another way to assess the classification accuracy of the discriminant model is by using a cross-validation procedure (Burns & Burns, 2008; Poulsen & French, 2008). In this procedure using the 'leave-one-out method', the sample is divided into two parts: the sample used in the analysis of the discriminant model and the holdout case used to validate

the results (Burns & Burns, 2008). In other words, each case is classified by the functions derived from all cases other than that case. From Table 5.41, 73.0% of cross-validated group cases have been correctly classified. Therefore, this result is further support for the classification accuracy of the discriminant model.

5.2.11. Secondary data analysis

Review of Content, Journals, and Articles

The probable technique employed for the observation of e-commerce in the development of customer perspectives was analysis of the content. In the proposed methodology, there was close communication concerning articles and relevant documents, but the main focus was kept on the various formats of content analysis. As this is social research, content analysis has been performed to assess trends and patterns in a replicable and systematic manner in the kingdom of Saudi Arabia.

To provide a rationale for this secondary data analysis, it can be explicitly stated that there are several advantages for the selection of methodology of research, but the core contribution of analysis is performed by the social phenomena, which are non-invasive and explicit. It was an explication of the study which contributed to the consideration of how certain factors explicitly help in the maintenance of the e-commerce industry in Saudi Arabia while influencing customer's perspectives as well. For instance, the research that has been carried out was to evaluate the impact of customer behaviours concerning online shopping trends and patterns.

There are certain evident domains of this research that have been measured as descriptive and predictive because of the provision of explanations relevant to the different reasons for establishing the outlook and understanding people's perspectives. Evaluation of these factors was based mainly on the results inferred after carrying out the critical assessments. They were then compared to the results of the primary data analysis using a survey on people's perception. In this context, practices and propensities concerned with the content

analysis were transformed along all of the proposed initial objectives, as the nature of online shopping reasons are different from those of traditional business modes.

Though all of the targeted aims were based on systematic readings which involved predictive observations of articles which referred to certain labels that indicated interesting or meaningful content. Moreover, works mentioning customer valuation and e-commerce websites were also included in the research. Likewise, the suggestions of economic, demographic, political, and relevant frequencies impacted the correlations between the different categories.

The research methodologies were based on the observation of common people's attitudes and a review of the case studies related to e-commerce subjects. Observation of people's perceptions was deemed to play a great role in the data collection with respect to the research concerning this phenomenon. It is significant to note that informational data employed in this research was not merely based on honest perceptions but on the accuracy of individual trends of real-life e-commerce businesses in the Kingdom of Saudi Arabia. Inference in this regard was made concerning the observational assessment of the people in their natural domains, as nothing was transformed by the modulation of the sample size to the idealistic economy.

In this methodology, mainly a hybrid of varying perceptions and characteristics of radicalness has been employed to serve the organisations by giving the people's opinions on issues. It is imperative to note that based on these intimations which have been obtained via this research, it has been determined that e-commerce and its related domains will become productive across the whole country because of their flexibility and adaptability. It is one of the contextual frameworks into which web trafficking assessments have been set for the clear explication of customer experiences and better ease of use in mobile apps in Saudi Arabia.

5.2.12. Conclusion

This chapter has presented data analysis results of the consumer perspective where the objective was to investigate the current status of e-shopping in Saudi Arabia and to identify

the factors affecting consumers' e-shopping usage level. The factors which were considered were consumer awareness, social factors, government e-readiness, retailers' e-readiness, and supporting industries' e-readiness. The chapter began with an introduction to model construction, the research hypotheses, data collection, and descriptive data analysis, including the demographic profile of the collected sample of 525 responses. Next, the results of a preliminary analysis of the collected data were presented using ANOVA, log determinants, and Box's M test. Finally, the results of the discriminant analysis, including canonical discriminant functions which include eigenvalues, Wilk's lambda, standardised canonical discriminant coefficients, functions at group centroids, and structure matrix were presented. Also, prior probabilities for groups and classification results (confusion matrix), including cross-validation, were presented.

In summary, the results suggest that all five hypotheses of consumers' perspectives have been supported, and the relationships between the five constructs and the usage level of e-shopping have been statistically explained. Moreover, consumer awareness ($r = .825$) was the most important factor affecting the Saudi consumers' use of e-shopping. This was followed by government e-readiness ($r = .942$), social factors ($r = .719$), supporting industries' e-readiness ($r = .673$), and retailers' e-readiness ($r = .667$). More details about the implications of the results will be presented in the discussion chapter.

In addition to technological innovations in the country related to e-commerce, voice-activated shopping and better connectivity have caused a surge in mobile shopping across the whole country. It is significant to note that methodological implications were based on the omnichannel retailing, in which progressive search engine optimisation was used with other marketing channels to interact with customers.

Lastly, the main purpose of the research was fulfilled with the elaboration of insights and the establishment of valid arguments related to e-Commerce maintenance and functionality. It is significant to note that all of the key perspectives will be discussed here to validate the research via a creative exploration of the organisations' key points and an assessment of people's interviews. This is why the structure of the study is considered

descriptive in that it illuminates the implied outlook of the people of Saudi Arabia as they are not overly aware of the technology.

Chapter 6 Data Analysis Using Interviews

6.1 Introduction to Data Analysis of Governmental Perspective

This research aims to achieve an in-depth understanding of the current status of e-commerce in Saudi Arabia and to investigate the factors affecting its adoption nationwide. The focus of this chapter is to analyse the data gathered by semi-structured interviews, using deductive qualitative analysis. This chapter presents the qualitative analysis of the governmental perspective interviews, which were conducted with eight representatives of governmental organisations that govern e-commerce activities nationwide. One representative from each of the following organisations was interviewed: Communications and Information Technology Commission (CITC), Ministry of Commerce and Investment (MCI), Ministry of Interior (MOI), a branch of the Ministry of Commerce and Investment, and three from the Saudi Chamber of Commerce.

The analysis process of the governmental perspective interviews is presented in the next six subsections. First, by way of a reminder, the model construction and research hypotheses for the governmental interview analysis are summarised, including reference to the interview questions relevant to each hypothesis in section 6.1.1. Second, a summary of the data analysis strategy and coding are presented in section 6.1.2. Thereafter, the analysis of the five themes (constructs) is presented in sections 6.1.3 – 6.1.7. Finally, a conclusion section is presented.

6.1.1 Model construction and hypotheses

The governmental perspective represents one of four perspectives to be examined in terms of their influence on e-commerce adoption in Saudi Arabia, which are SMEs' perspective, consumer perspective, governmental perspective, and supporting industries' perspective. Figure 6.1 shows the predesigned five constructs affecting e-commerce adoption from the government perspective. These five constructs cover aspects considered by many researchers in the literature as factors that affect e-commerce adoption in developing countries (AbouSaber, 2007; Al-Harby, 2006; Al-Khilaiwi, 2007; Brown & Wicker, 2000; Burns & Burns, 2008; Field, 2009; Hair, 2010; Kurnia et al., 2009; Mbamba, 2006; Molla &

Licker, 2005b; Morrison, 1969; Nathan, 2009; Sait et al., 2007; Selim, 2008; Spencer, 2013; Uzoka et al., 2007). Also, the conducted exploratory study supported the existence of these effects in Saudi Arabia.

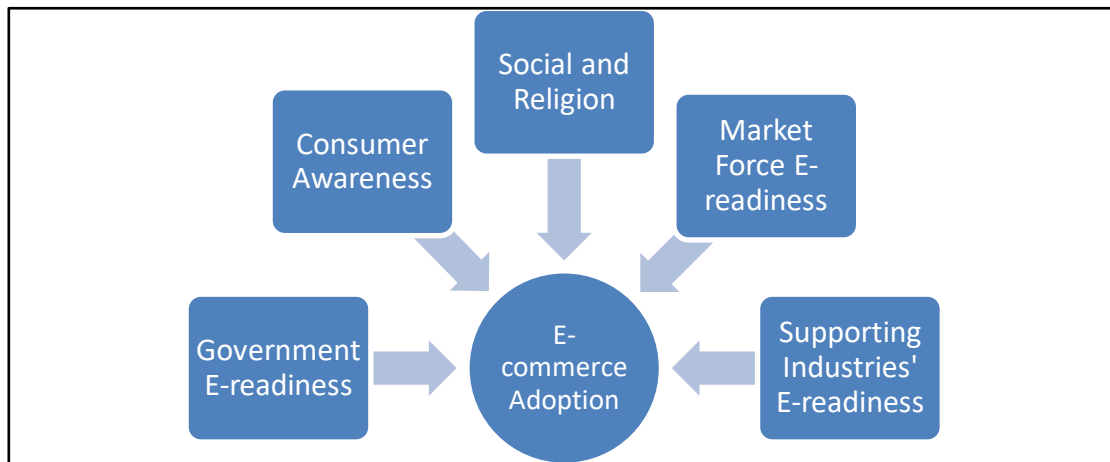


Figure 6.1 Constructions of governmental perspective

From Figure 6.1, consumer awareness was the first theme to be addressed using five open-ended questions to assess consumer awareness, consumers' e-skills, governmental promotion of media role, educational curriculums, and the government's plans to enhance consumer awareness. Second, the social and religion theme was addressed by using five open-ended questions covering the importance of English language, English language skills of Saudi society, the preference for physical shopping, conflicts between Islamic regulations and e-commerce, and the relation between e-shopping use and cultural aspects. The third theme, government e-readiness, was addressed using five open-ended questions covering the availability of effective laws to protect consumer rights, the existence of effective laws to combat cybercrime, the legal environment of the Saudi market, the governmental commitment towards e-commerce promotion, and the roles of Saudi government towards the enhancement of e-commerce adoption. The next theme, market force e-readiness, was addressed using three open-ended questions covering the readiness of Saudi retailers to conduct e-commerce, the available e-shopping websites, and the readiness of Saudi consumers to use e-shopping. The last theme, supporting industries' e-readiness was addressed using five open-ended questions that cover telecommunication services, the technology infrastructures of financial institutions, the

quality of banking services, the post system and services, and the governmental roles to enhance supporting industries' promotion of e-commerce applications across the country.

Data analysis strategy and coding

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Deductive qualitative analysis was applied to governmental perspective interviews. Thematic analysis was used as an analytic method. Braun and Clarke (2010, p. 6) define thematic analysis as "a method for identifying, analysing, and reporting patterns (themes) within data". As mentioned previously, the interviews investigated five preselected themes from a governmental perspective. Also, the interview schedules comprised twenty-three questions in total, in addition to follow-up questions as required. These twenty-three questions represented the core codes, as they addressed the main topics that covered each theme. Therefore, the suggested six phases of thematic analysis by Braun and Clarke (2010, p. 35) have been adopted. So, the analysis started with transcribing the interview data. Thereafter, an initial open coding analysis of the interviews produced a total

of 117 codes. The follow-up intensive coding resulted in 72 codes directly linked to the twenty-three core codes.

ATLAS.ti 7 software was used to assist the researcher to organise, edit, and analyse the qualitative data. The software was very helpful, and it produced network views to show the relationships between the core codes and subcodes.

Also, the numbers in brackets in the network views respectively indicate the frequencies of the code and the number of its relationships to other codes. Sections 6.1.3.– 6.1.7 present an analysis of the five themes and core codes with their relations to the subcodes, including some quotation examples. Furthermore, for confidentiality and anonymity reasons, the participants were given a code (P1, P2, P3....etc.). As stated in the qualitative research design, the researcher used a two-way translation process, given that the interviews had to be carried out in Saudi Arabia and so had to be conducted in the Arabic language.

6.1.3 Theme one: Consumer awareness

The first theme from the governmental perspective was consumer awareness, in which were addressed Saudi consumers' knowledge about e-shopping advantages and disadvantages, Saudi consumers' e-skills, governmental promotion of media role, existing educational curriculums, and governmental plans to promote e-commerce awareness, using five open-ended questions. Figure 6.2, Consumer awareness network view, shows the five core codes covering the consumer awareness theme. The figure also shows the subcodes of each core code, including the code densities in brackets, i.e. the number on the right indicates the code frequency, and the number on the left indicates the number of its relations to other core codes.

The results indicate that consumer awareness is insufficient for several reasons, including high rates of internet fraud, the newness of e-commerce and consumer culture, and lifestyle. However, high rates of internet usage, the fast growth of e-commerce activities, and the increased demand for e-commerce all revealed that Saudi consumers have good e-skills. Moreover, the Saudi government stated that they are promoting through the media all means to enhance consumer awareness nationwide. A downside identified by the results

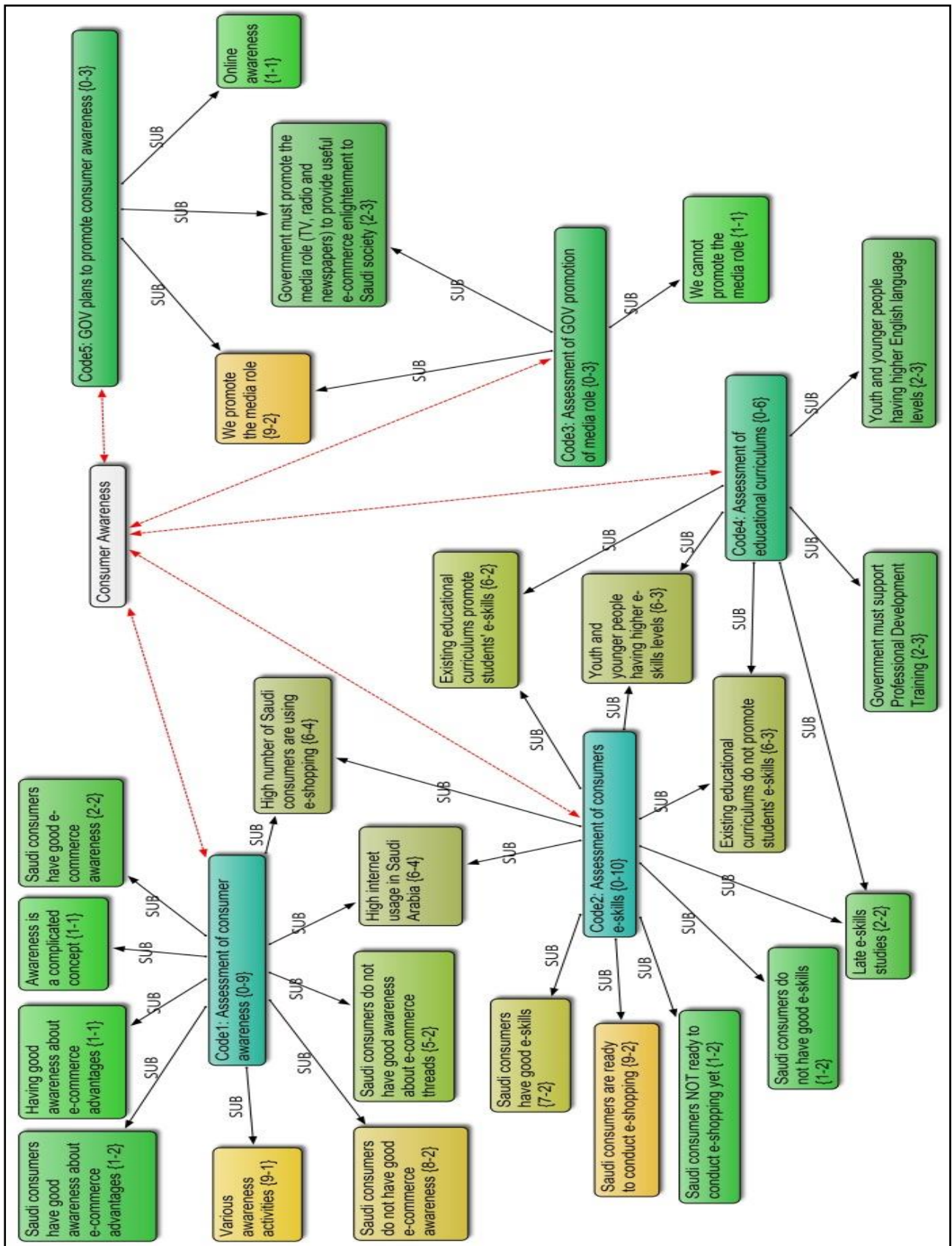


Figure 6.2. Consumer awareness network view

is that existing educational curriculums are insufficient to promote students' e-skills, but some participants believed that the new revised educational curriculums are capable of doing so. Furthermore, the government has many plans to promote consumer awareness, i.e. activating media roles, awareness workshops, awareness competitions, and campaigns. The following subsections report the results of the consumer awareness theme in detail.

Code1: Assessment of consumer awareness

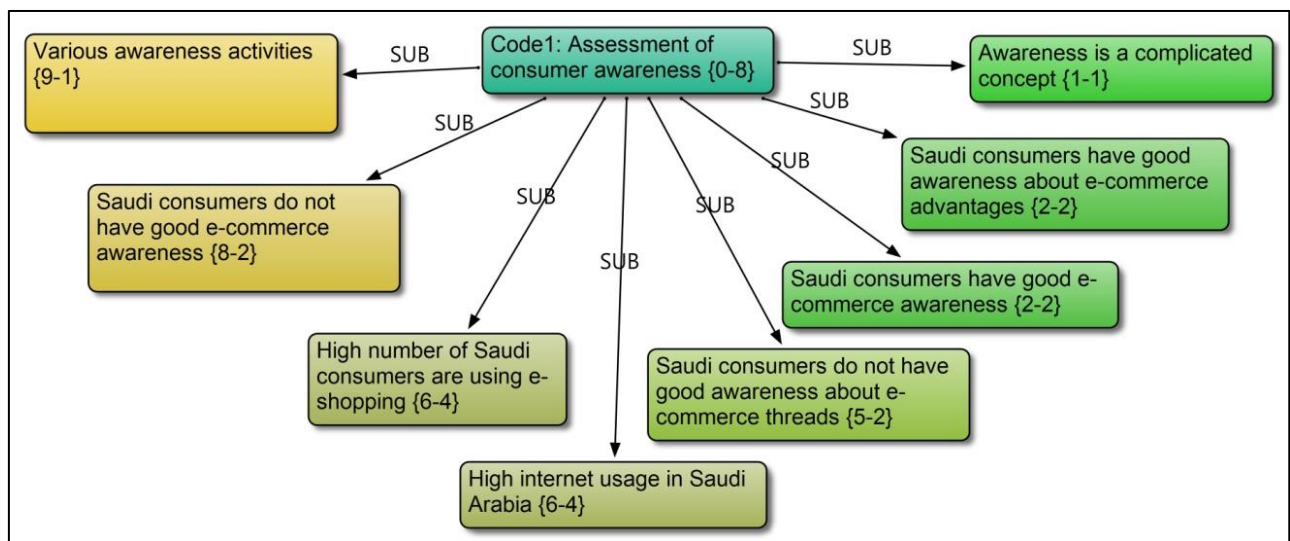


Figure 6.3. Assessment of consumer awareness

Figure 6.3 shows the network view of the assessment of consumer awareness core codes. Most of the participants claimed that Saudi consumers have insufficient e-commerce awareness on account of several reasons, such as the higher rate of internet fraud, e-commerce newness to Saudi society, and consumer lifestyle. For example, one of the participants said:

"if you have a look at the reports of a large amount of electronic fraud in Saudi Arabia, you'll know that a lot of Saudis do not have enough awareness about this modern technology where they are not able to identify whether a shopping website is reliable or not." (P6)

So, in this case, the participant considered the amount of reported internet fraud as an indication of the weakness of consumer awareness. Another participant, with respect to the weakness related to the newness of this technology in Saudi society, said:

"I do not think that Saudi consumers are aware of e-commerce advantages and threats because of its newness to Saudi society, which will require some time until people get the necessary awareness about the benefits and risks of this technology." (P5)

Another participant also confirmed that weakness when he said the following:

" the consumer awareness is weak. They are not aware of the modern lifestyle, i.e. internet usage, email usage nor ATM as for some groups of people." (P4)

On the other hand, surprisingly, most participants agreed that internet usage in Saudi Arabia is relatively high, as identified by one of the participants:

" Our statistics indicate that the Saudis are the highest in the use of YouTube, Twitter, and Facebook. Also, we are at a higher ranking in the global statistics of internet usage." (P1)

Moreover, the participants indicated that although Saudi consumers have limited awareness about e-shopping threats, they are still seeking its advantages, even with the limited availability of e-shopping websites. Hence, they use different channels to sell and buy online, e.g. social media, internet forums, and mobile apps. This reveals, from the Saudi governmental perspective, that Saudi consumers have a high tendency to use e-shopping. For example, one of the interviewees said:

"Total e-sales in Saudi Arabia amounted to nearly four billion dollars, including 800 million dollars in retail sales and the rest in other sectors, such as banking and travel. Also, 31% of Saudis are trusting online purchases. This is the highest percentage in the region and is sufficient evidence of the readiness of Saudi consumers to enter the electronic markets strongly. In addition, because of the lack of available e-shopping websites, Saudis started years ago to invent new ways to buy and sell over the internet, such as the use of social networks, mobile apps, and online forums, which is the first way in which the Saudis used to buy and sell online a long time ago." (P4)

Furthermore, some participants underlined that consumer awareness of e-commerce threats is very low, which explains the high rates of cybercrime. One participant said:

"I don't think that Saudi consumers have sufficient e-commerce awareness, especially about its threats and disadvantages. The existing users mostly are not familiar with the conception of e-shopping terms and conditions, and nobody even reads them." P5

However, other participants indicated that Saudi consumers are aware of e-commerce advantages and benefits:

"I believe that people are completely aware of e-shopping advantages, i.e. time-saving and cost-saving measures, making it easy to compare between the offers, and the most important thing is that it allows cross-border shopping." (P2)

On the other hand, participants mentioned various awareness activities to confirm their commitment to promoting consumer awareness about e-commerce advantages and threats in order to enhance their usage. One of the participants said:

"We pay more attention to activating the role of corporate social responsibility programmes, particularly in the field of information security awareness." (P1)

Other participants made note of several other activities, such as awareness workshops, awareness competitions, awareness campaigns, and the press.

Code2: Assessment of consumers' e-skills

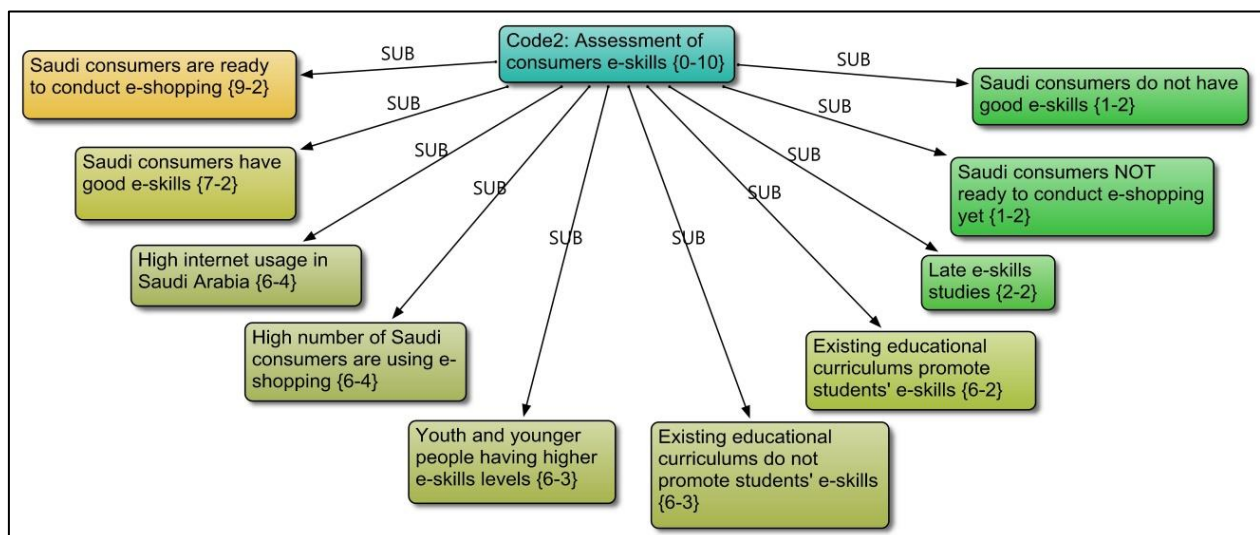


Figure 6.4 Assessment of consumers' e-skills

Figure 6.4 shows the network view of the assessment of consumers' e-skills. The results reveal that Saudi consumers, especially youths and younger people, are highly skilled regarding their abilities to use computers, mobile devices, and the internet to shop online. Also, participants indicated several signs that point to this, e.g. high internet usage, high annual spending on e-shopping, and the high quality of new educational curriculums. This confirms that Saudi consumers are ready to use e-shopping. For example, one participant said:

"Regarding the computer and internet use, I think that most Saudis have a good ability, especially youths, as the use of these modern computer technologies and online shopping is representing their lifestyle." P5

Another one indicated that

"32% of Saudi internet users have already bought products using e-shopping, representing 3.7 million people or 12% of the Saudi population, and the total of their purchases in the last year was more than 16 billion SR (about 4 billion US dollars). This indicates the great willingness of Saudi citizens to shop online." (P3)

Code3: Assessment of governmental promotion of media role

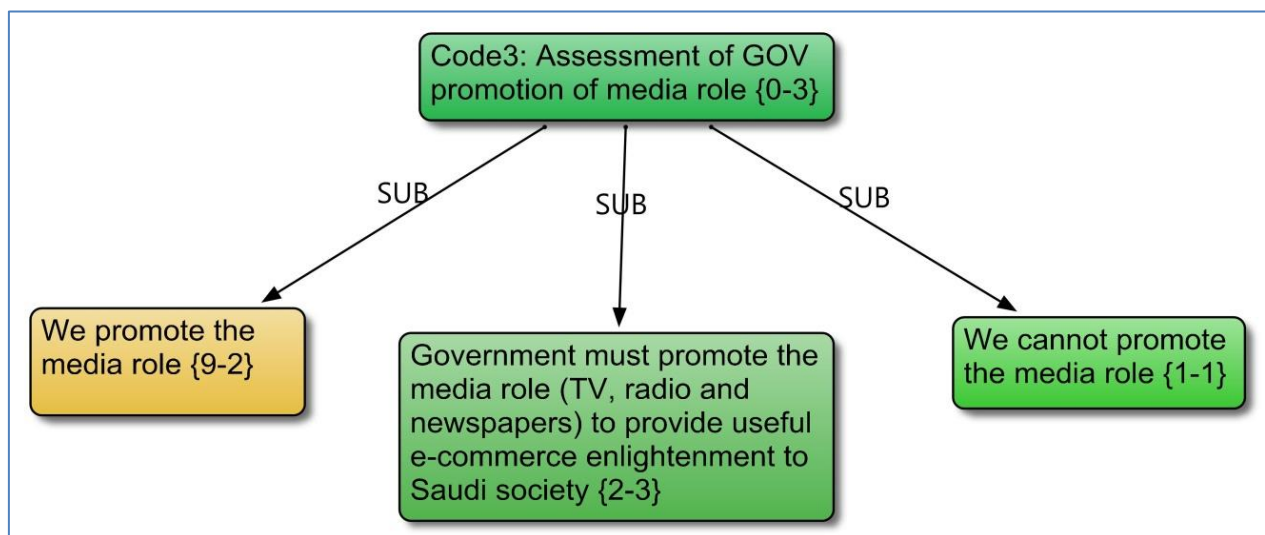


Figure 6.5. Assessment of GOV promotion of media role

Figure 6.5 shows the network view of the assessment of governmental promotion of media role. Almost all participants agreed that their governmental organisations support the media role, e.g. TV, radio, newspapers, and internet channels in terms of e-commerce awareness-raising promotions in several ways. For example, one of the participants said:

"Certainly, I believe that the role of the media is very important in educating the community about the risks and benefits of electronic shopping, and our recent reports stated that awareness programmes over the internet are more effective than the TV, followed by the radio and finally the newspapers. However, we are keen to support awareness campaigns in various media outlets." (P1)

Moreover, one participant indicated that his organisation could not promote the media's role, and he believed that it is the retailers' responsibility to raise their clients' awareness about e-commerce.

Code4: Assessment of educational curriculums

Figure 6.6 shows the network view of the assessment of educational curriculums. The results present two different arguments about the capability of educational curriculums to promote students' e-skills, including online awareness. First, several participants believed that existing educational curriculums do not promote students' e-skills. And other participants believed that existing educational curriculums are capable of promoting students' e-skills. Each of these different views has supporting evidence. For example, the participants who believed that educational curriculums are weak indicated several reasons for doing so, such as late e-skills studies, out-of-date contents, and concentration on useless technical contents rather than focusing on modern lifestyle needs and finally the obvious academic weakness of the teachers.

"The curriculum should enhance the student's ability to take advantage of these technologies in their daily lives more than just focusing on the technical aspects that students may not need at all in their lives." (P4)

On the other hand, the participants who thought that existing educational curriculums are capable of promoting students' e-skills, mentioned several reasons to support their views and consider that there is

"no doubt that youths and younger people have higher e-skills and English language levels, and because of that, the new curriculums are much better than previous ones, as it does what it should do." P1

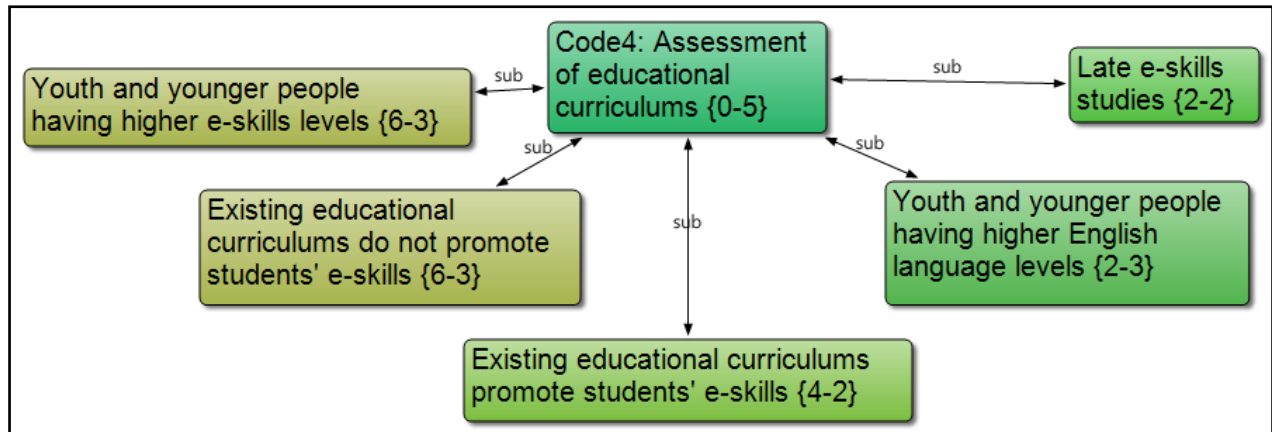


Figure 6.6. Assessment of educational curriculums

Code5: GOV plans to promote consumer awareness

Figure 6.7 shows the network view of governmental plans to promote consumer awareness. Most participants stated that the government is promoting the role of the media in many ways. Also, some participants confirmed that the government must promote the media's role (TV, radio, online awareness, and newspapers) to provide useful e-commerce enlightenment to Saudi society.

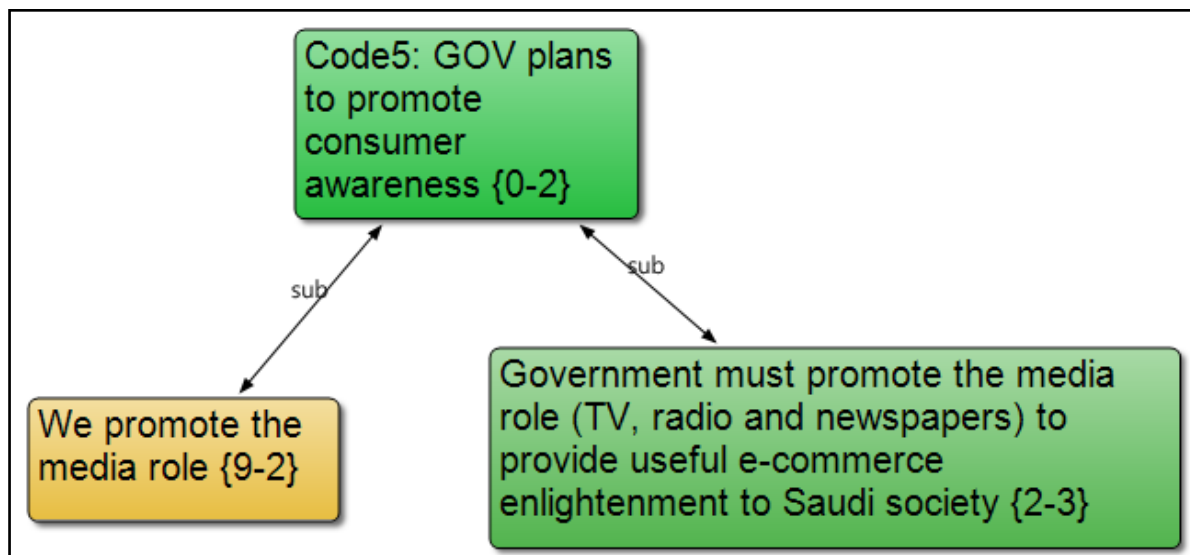


Figure 6.7. GOV plans to promote consumer awareness

Furthermore, the results show that the government has many plans to promote consumer awareness, i.e. activating media roles, awareness workshops, awareness competitions, and campaigns.

"Certainly, we are keen to support various awareness activities to improve the awareness level of the society." P3

"Certainly, the media's role is very important in educating the community about the risks and benefits of electronic shopping. Our recent reports state that awareness programmes over the internet are more effective than TV, radio, and newspapers. However, we are keen to support awareness activities in various media channels."
P1

6.1.4 Theme two: Social and religion

Figure 6.8 shows the network view of the social and religion theme, which was addressed through five open-ended questions covering the importance of the English language, the English language skills of Saudi society, the preference for physical shopping, conflicts between Islamic regulations and e-commerce, and the relation between e-shopping use and cultural aspects. The results reveal that there are no conflicts between the Islamic religion and e-commerce, although Saudi society prefers traditional shopping due to cultural reasons. Moreover, the results have shown that although English language skills are essential, they have no impact on a consumer's intention to use online shopping as long as alternative Arabic shopping websites are available. More detailed findings are presented in the following subsections.

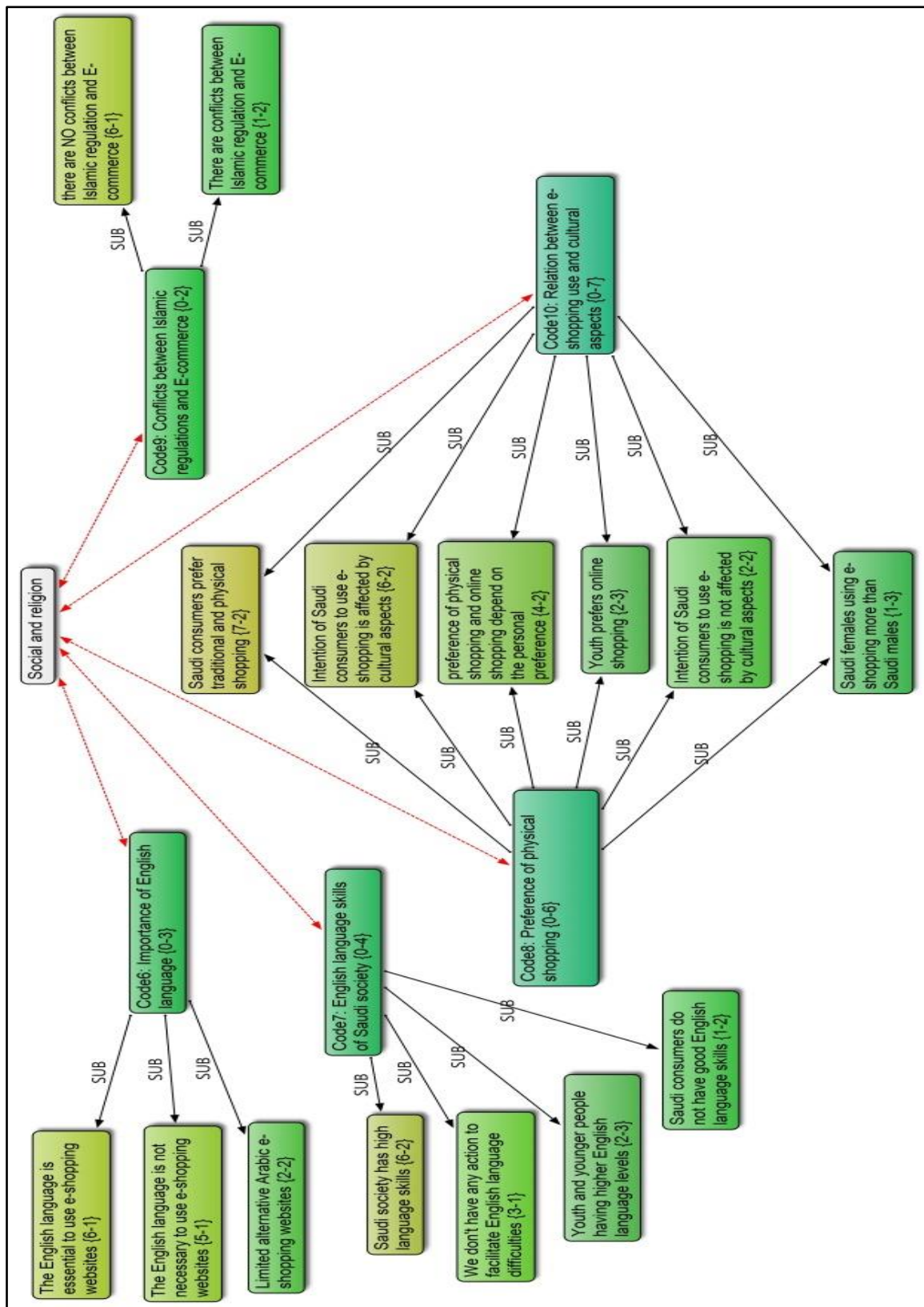


Figure 6.8. Social and religion network view

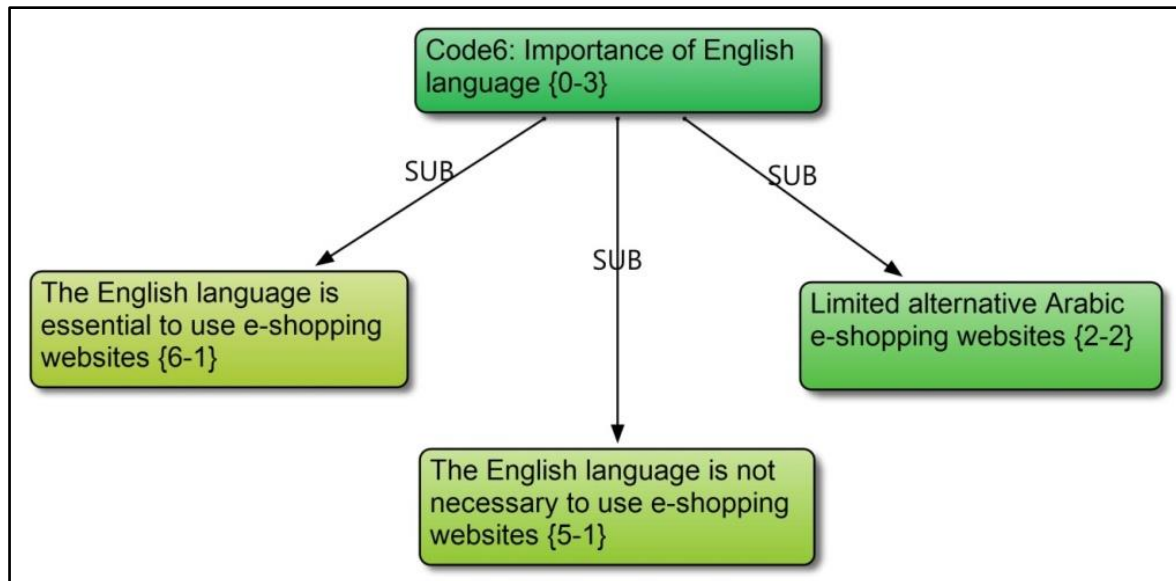
Code6: Importance of English language

Figure 6.9. Importance of English language

Figure 6.9 shows the network view of the importance of the English language core code. Although some participants indicated that the English language is necessary to use online shopping, they also noted that Arabic alternatives exist. Furthermore, other participants believed that the English language is not necessary to use e-shopping websites as long alternative Arabic shopping websites are available. Also, some participants thought that the number of Arabic shopping websites is limited at the current time, although they believed that this number would increase over time or according to the increase in online shopping usage.

“Certainly, knowing a global language like English has a significant impact on the extent of the user’s success, and their ability to access the commodity via the internet also gives them more opportunities to deal with international websites. However, many alternatives support the Arabic language, although they are still limited. I think it will develop according to the progress of supply and demand in Saudi society and the Arab world.” P1

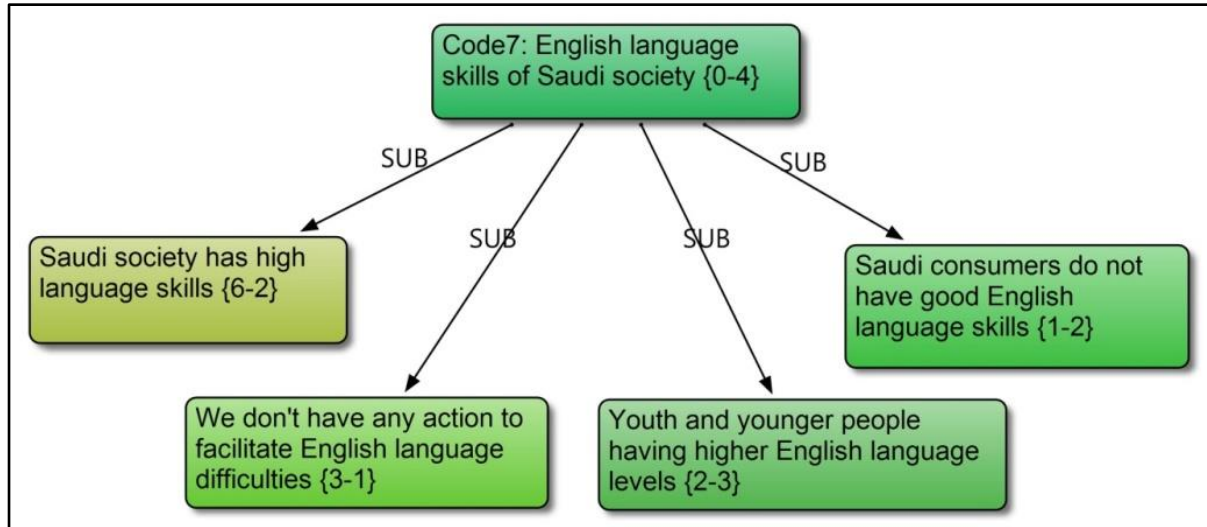
Code7: English language skills of Saudi society

Figure 6.10. English language skills of Saudi society

Figure 6.10 presents the network view of the English language skills of Saudi society's core code. Most participants agreed that Saudi society has high English language skills, especially among the youth and younger people. They prefer this to the modern lifestyle and the new educational curriculums. As a result of this, governmental departments do not have any plans to facilitate overcoming English language difficulties as they relate to e-shopping.

"As I mentioned before, the English language is an important factor, but with the existence of Arabic alternative, it would be less effective by the day. However, if you mean the current status, the biggest segment of internet and e-shopping users in Saudi Arabia are the youth and younger people who are very fluent in the English language as a result of the new good curriculums they receive. Also, this is because they use modern technologies in their daily lives, such as the internet, smartphones, and electronic games. Also, they learn English from the TV programmes and international channels, they watch during this era of globalisation, which is a critical factor in what we witness." P1

"In my view, we do not consider the English language as one of our priorities as far as we are keen to support the development of local e-shopping sites in Arabic. However, we encourage our web developers to offer English versions on the local

e-shopping websites to be used foreigners whether who lives in our country or any other." P2

Code8: Preference for physical shopping

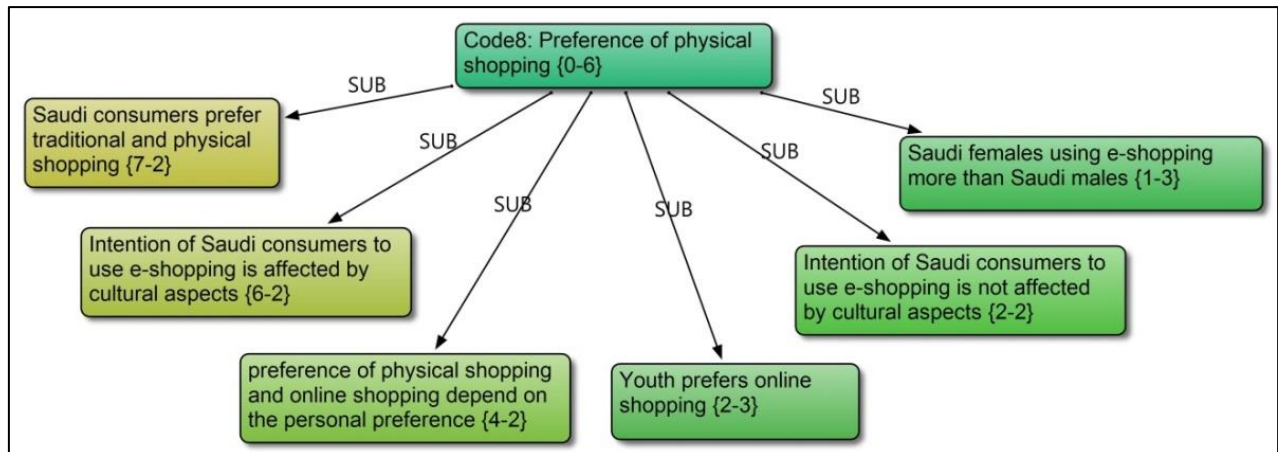


Figure 6.11. Preference for physical shopping

The preference for physical shopping network view is presented in Figure 6.11. This core code has investigated whether Saudi society prefers physical shopping rather than e-shopping. The results reveal that directly and indirectly the intention of Saudi society to use e-shopping is affected by cultural aspects. Some participants referred to a number of reasons, e.g. traditional shopping is one of the very limited social activities available in Saudi Arabia, and they prefer to physically inspect goods and price bargaining. Also, some participants believed that the preference for physical shopping or e-shopping depends on personal preference. Moreover, the results reveal that Saudi females use e-shopping more than Saudi males and that youths prefer online shopping more than older people because they are much familiar with new technologies.

"The Saudis prefer traditional shopping more than e-shopping. I would attribute their unwillingness regarding online shopping to the fact that traditional shopping is one of the most important forms of entertainment and recreation psychologically for them. Also, because of their weak trust in the possibility of replacing or returning goods purchased over the internet." P5

"Saudi females have more demands to use e-shopping than Saudi males to buy goods and products over the internet. They are surpassing the men in this area, as

the e-shopping sites are more popular among women due to social conditions, such as closed women's society as well as to follow high fashion." P6

"the existence of e-shopping culture in the modern lifestyle and the availability of the appropriate age group of young people helped in the speedy formation of this culture and the presence of the desire for online shopping, especially by the youth who are encouraging their relatives and helping them to use e-shopping." P2

Code9: Conflicts between Islamic regulations and e-commerce

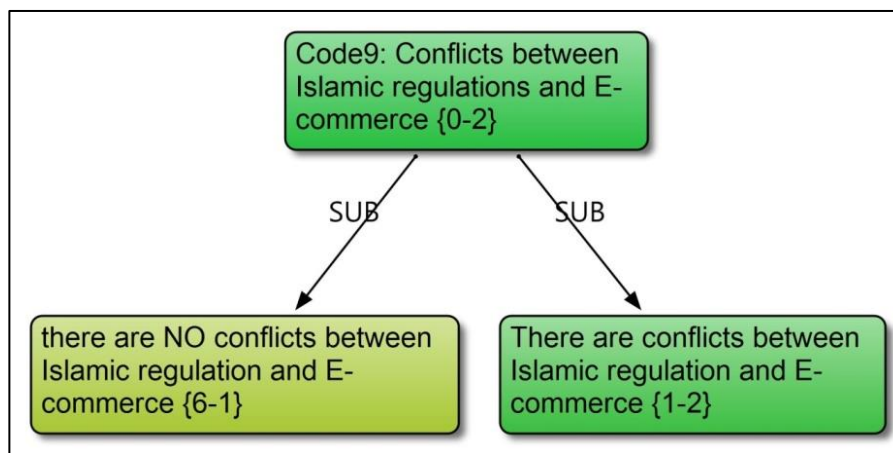


Figure 6.12. Conflicts between Islamic regulations and e-commerce

Figure 6.12 shows the network view of the conflicts between Islamic regulation and e-commerce. Certainly, almost all of the participants believed that there are no conflicts between Islamic regulation and e-commerce. Although most new technologies encountered are misleading on first presentation to the Saudi society about whether they suit Islamic religion or not, religious authorities soon clarify the possibility of using the new technology, e.g. radio, tv, satellite dish, and the internet.

"Saudi society, as you know, is a religious society. We always witness social murmurs at the emergence of any new technology when society is divided between supporters and opponents until fatwas and statements that support, oppose, or clarify the different dimensions of the subject from the viewpoint of the Islamic religion are issued. For example, from the beginning of several examples entering the radio and TV since decades ago to the satellite channels and the internet, now we see social media and the electronic shopping revolution. Of course, we seek to

use new technologies, but we require opt-in consent from our religion. So, we always try to find solutions for any conflicts if there any. About electronic shopping, we have a lot of initiatives to settle the dispute with the rules of religion. So, we work on finding alternative payment methods that are accepted by our religion, such as introducing pre-paid payment cards and SADAD payment system as well as carrying out awareness campaigns that explain to the community that e-shopping is accepted in our religion." P1

Code10: Relation between e-shopping use and cultural aspects

The last core code under theme two (social and religion) is about the relation between e-shopping use and cultural aspects.

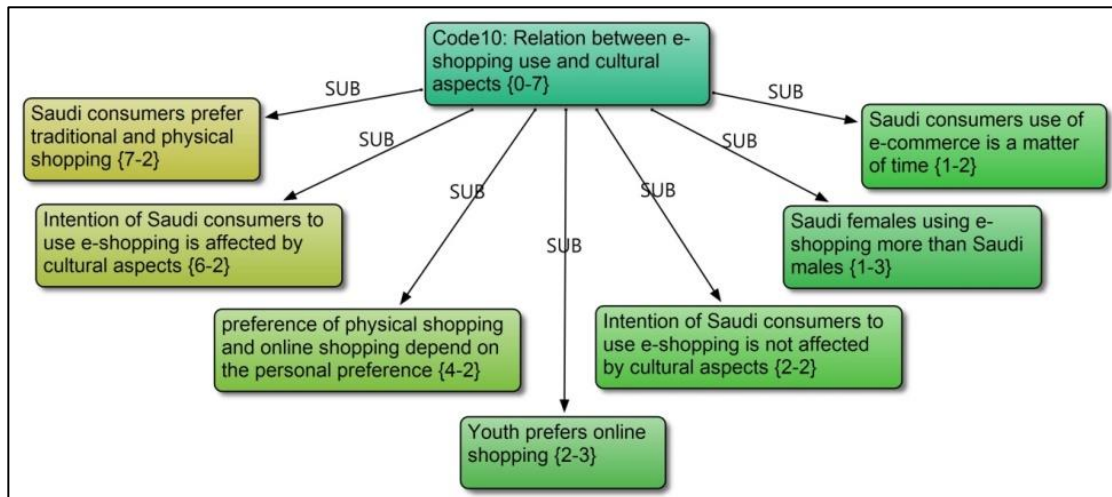


Figure 6.13. Relation between e-shopping use and cultural aspects

Figure 6.13 relation between e-shopping use and cultural aspects shows the network view of this core code. The results show that most Saudi consumers prefer traditional and physical shopping as a social habit. This, in turn, supports the following finding that the intention of Saudi consumers to use e-shopping is affected by cultural aspects. For example, one participant mentioned that

"Our consumer culture is weak. Saudis are not aware of electronic culture to be able to use e-shopping successfully. The Saudi consumer mentality still prefers traditional shopping that allows them to pick the goods themselves because they

usually make a purchase decision after several attempts, a debate about the price difference, and search for the finest goods." P4

Furthermore, some of the participants believed that a preference for physical shopping or online shopping depends on personal preference. For example, one participant mentioned the following:

"In my opinion, it is a relative matter whether some people prefer the traditional shopping as a way to entertain and enjoy the time to visit the markets and the selection of their purchases, while other people prefer to sit in front of the computer and surf the e-shopping sites to compare prices and get the best deals while enjoying their time too." P1

Other participants claimed that there is an inverse relationship between the preference for traditional shopping and the culture of e-shopping, i.e. the more knowledge of e-shopping usage, the less use of traditional shopping. Another finding indicated that the youth prefer online shopping more than other age segments. Also, due to the conservative Saudi society, Saudi females are using e-shopping more than Saudi males, as it offers them an easy way to browse, compare prices, and follow the high fashion. Moreover, there were participants who believed that the acceptance of e-shopping by Saudi society is a matter of time and not affected by cultural aspects. As time passes, people will come to know more about the advantages they could get by using such new technology, which do not contradict our traditions nor culture in any way.

6.1.5 Theme three: Government e-readiness

Figure 6.14 shows the network view of government e-readiness theme, which was addressed using five open-ended questions that cover the availability of effective laws to protect consumer rights, the existence of effective laws to combat cybercrime, the legal environment of the Saudi market, the governmental commitment towards e-commerce promotion, and the roles of Saudi government towards the enhancement of e-commerce adoption. The results confirm the existence of effective laws to protect consumer rights and combat cybercrime. More detailed findings are presented in the following subsections.

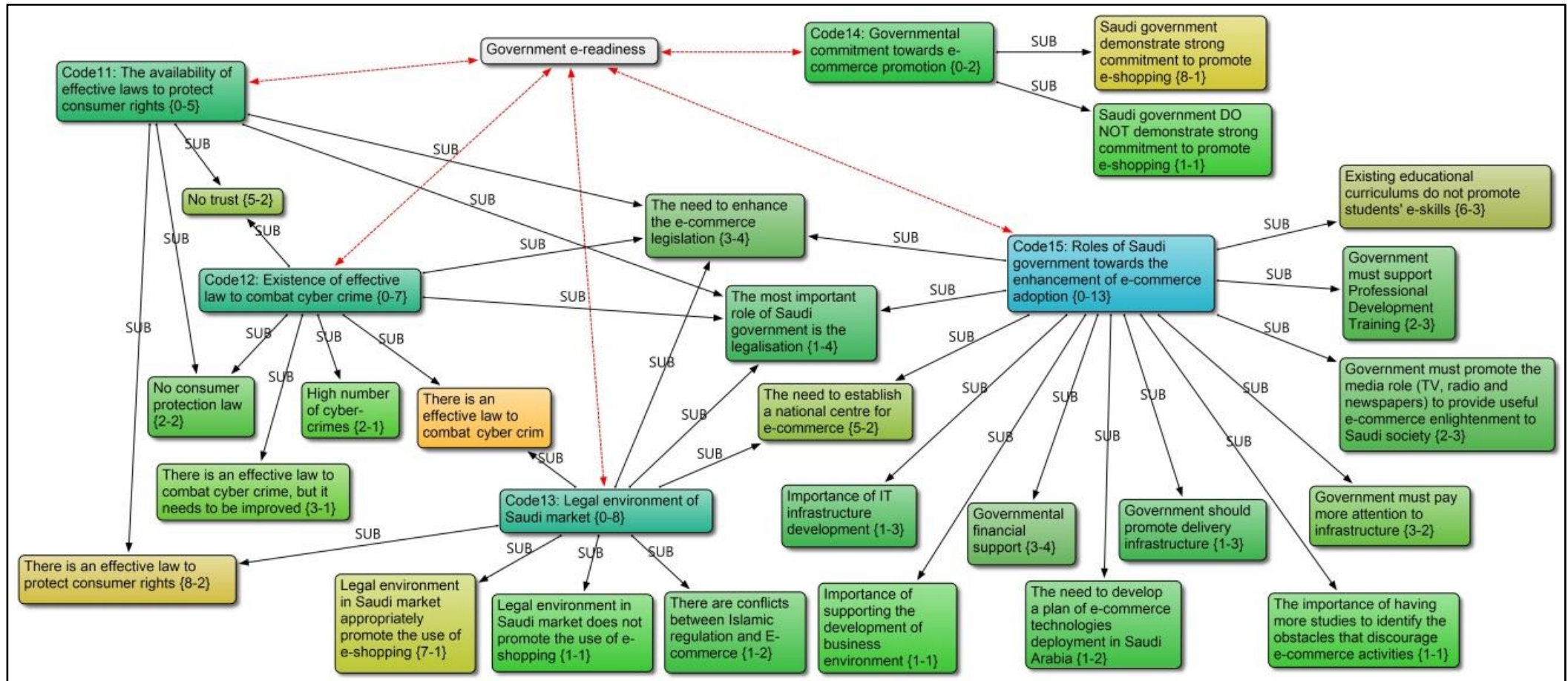


Figure 6.14. Government e-readiness network view

Code11: The availability of effective laws to protect consumer rights

Figure 6.15 shows the network view of the availability of effective laws to protect consumer rights code. The results reveal that Saudi Arabia has effective laws to protect consumer rights, but people distrust online shopping on account of many reasons, e.g. their awareness about these laws is very weak, they don't trust the shopping websites or the sellers, and they don't trust the delivery service.

"Of course, we have an approved and effective e-commerce law which aims to boost confidence in legal business transactions and maintain their integrity. Also, it encourages the customer to buy online after he/she has been briefed on the information related to the products that he/she wants to buy to be certain of the validity of the electronic business transaction, and he/she is protected from a legal point of exposure for any fraud or deception." P1

"Some people believe that buying online is expensive, complicated. and a lot of consumers are seeing the word trust as a barrier for them because of their very limited knowledge about e-commerce laws and its effectiveness. Also, they distrust the delivery of any goods they buy through the internet." P3

Moreover, although some participants believed that the most important role of the Saudi government is legalisation, they believed that e-commerce legislation needs more enhancements to promote e-commerce applications nationwide.

"The most important role of government is to apply the appropriate laws to protect consumers and traders alike and to ensure the effectiveness of these laws. And what we observe in this regard is that it has placed the law but has not reviewed the results of the application of that law to revise and enhance it to achieve greater support for e-commerce." P8

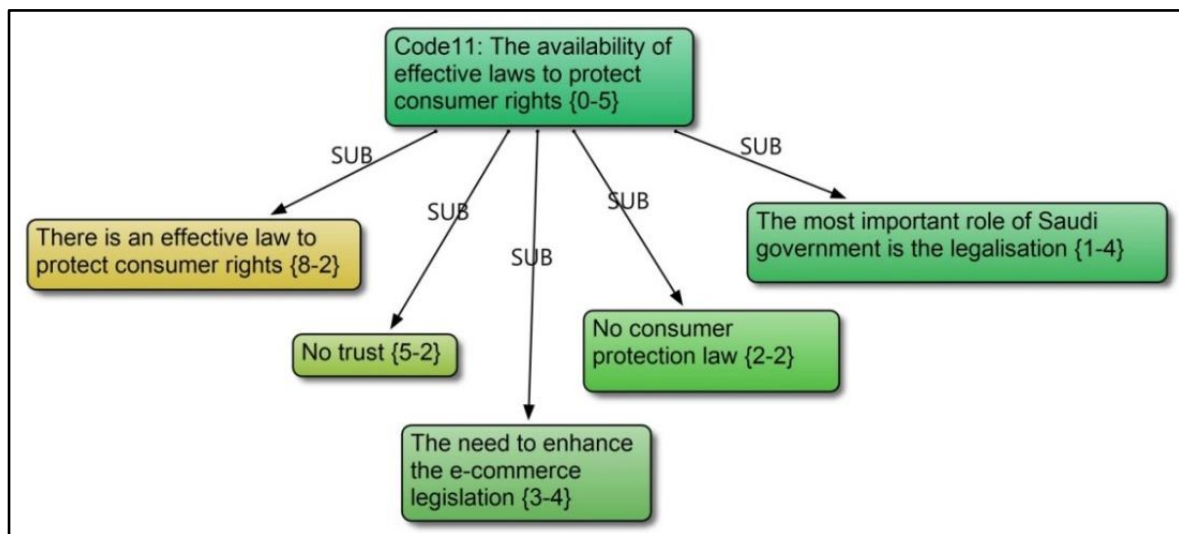


Figure 6.15. The availability of effective laws to protect consumer rights

Code12: Existence of effective laws to combat cybercrime

The second core code related to the government e-readiness theme is the existence of effective laws to combat cybercrime.

The results reveal that most participants agreed that there are effective laws to combat cybercrime; however, some participants claimed that improvements are needed to reduce the high incidence of cybercrimes in the country. Trust is another problem, which is caused by high levels of cybercrime. Saudi people are frightened of e-shopping due to what they hear and read in the newspapers and media about it. So, they distrust e-shopping websites and online traders.

"Of course, we have a law to combat IT crimes, which aims to reduce the incidence of cybercrime by identifying these crimes and the penalties prescribed for each of them, and to help achieve information security, to preserve rights for the legitimate use of computers and information networks, to protect the public interest, ethics, and public morals. and to protect the national economy and the consumer primarily." P6

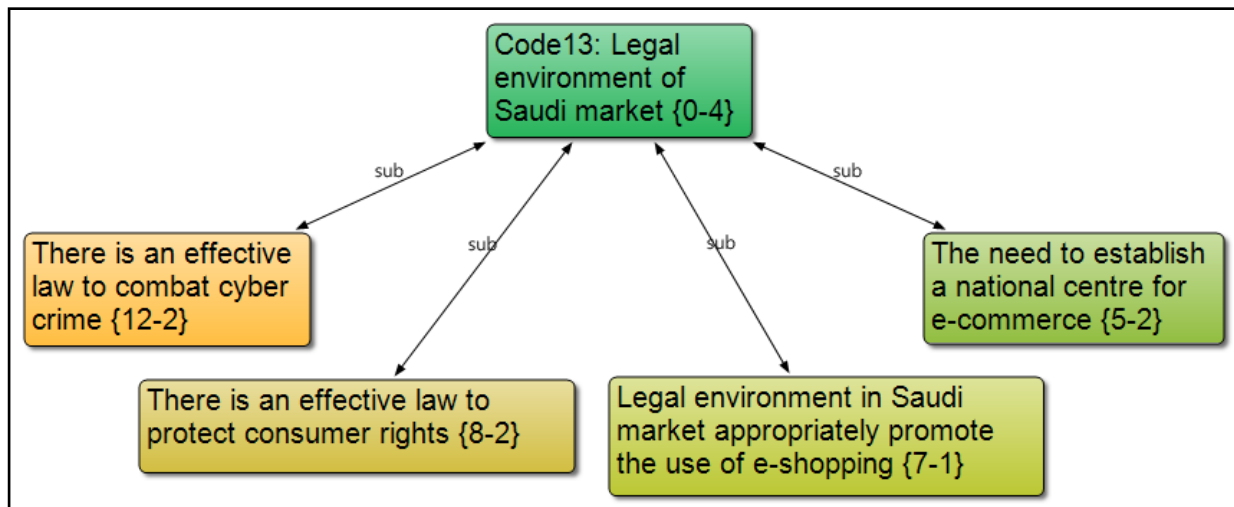
Code13: Legal environment of Saudi market

Figure 6.16 Legal environment of the Saudi market

Figure 6.16 shows the network view of the legal environment of the Saudi market. Certainly, most participants believed that the legal environment in the Saudi market appropriately promotes the use of e-shopping. Also, they confirmed that there are effective laws to combat cybercrime and to protect consumer rights, which can promote e-commerce applications nationwide. One of the participants indicated that Saudi Arabia is number 12 out of 180 countries on the ease of doing business rankings 2012. This reflects how good the business environment is in Saudi Arabia. Moreover, some participants requested the establishment of a national centre for e-commerce to assume the entire responsibility for e-commerce applications in the country, e.g. e-commerce promotions, adoptions, developments, support, and governance.

"We have strong judicial procedures that encourage safe investment in all fields, enough for you to know that we got 12th place of approximately 180 of the world's best countries in terms of the ease of doing business in 2012." P7

"We need to establish a national centre for e-commerce, which should be responsible for all issues and procedures of e-commerce, especially if we consider that the basics and regulations of this trade are intangible. We require that centre to be the regulatory ruling basis for this trade. So, it should be able to create a safe business environment for traders because it is important to find a good way to

govern e-commerce disputes. Also, it should suit the speed, nature, and circumstances of all parties in this business." P4

Code14: Governmental commitment towards e-commerce promotion

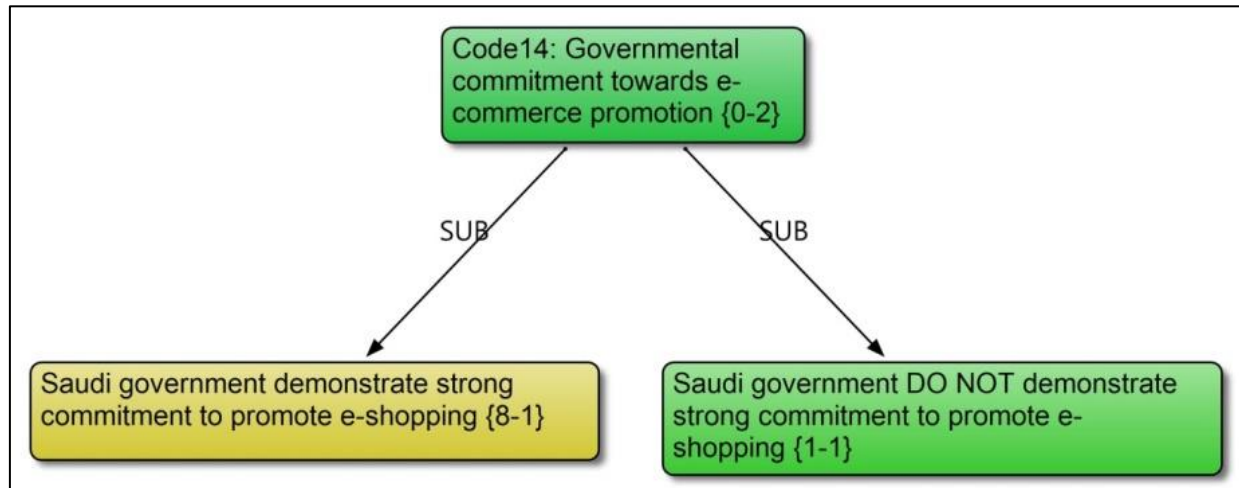


Figure 6.17. Governmental commitment towards e-commerce promotion

Figure 6.17 shows the network view of governmental commitment. In terms of governmental commitment, most participants agreed that the Saudi government demonstrates a strong commitment to promoting e-shopping. They offered several indications to prove their claim: e.g. the Ministry of Commerce and Industry launched www.marooof.sa, a website to support and organise e-commerce in Saudi Arabia; new computer education curriculums were adopted, which matching the modern lifestyle; scholarships have been given to large numbers of students to study e-commerce in other world countries; many bodies that regulate the development of e-commerce have been established, and the electronic transactions protection law and the anti-cybercrime law have been adopted.

"Certainly, the Saudi government has a good commitment to support e-commerce development, and the proof of this is its adoption of appropriate laws and regulations for the governance of electronic trading in the country..." P6

"There is no doubt that the state, saved by God, strives to support the use of this technology in the country and to take advantage of it by all means and ways, and there are plenty of signs of that from the beginning of sending large numbers of

students to study this major across the world, the establishment of many of the bodies to regulate electronic dealings, and the development of electronic trading law, and the law of IT crimes ... to other initiatives to promote the use of this technology." P5

Code15: Roles of Saudi government in enhancing e-commerce adoption

The last core code under theme three (government e-readiness) is about the roles of the Saudi government with respect to enhancing e-commerce adoption. The government in this regard is represented by all e-commerce-related organisations, such as the Ministry of Communications and Information Technology, the Ministry of Commerce and Investment, the Ministry of Economy and Planning, the Ministry of Education, the Ministry of Finance, the Ministry of Culture and Information, the Ministry of Interior, and the Ministry of Justice.

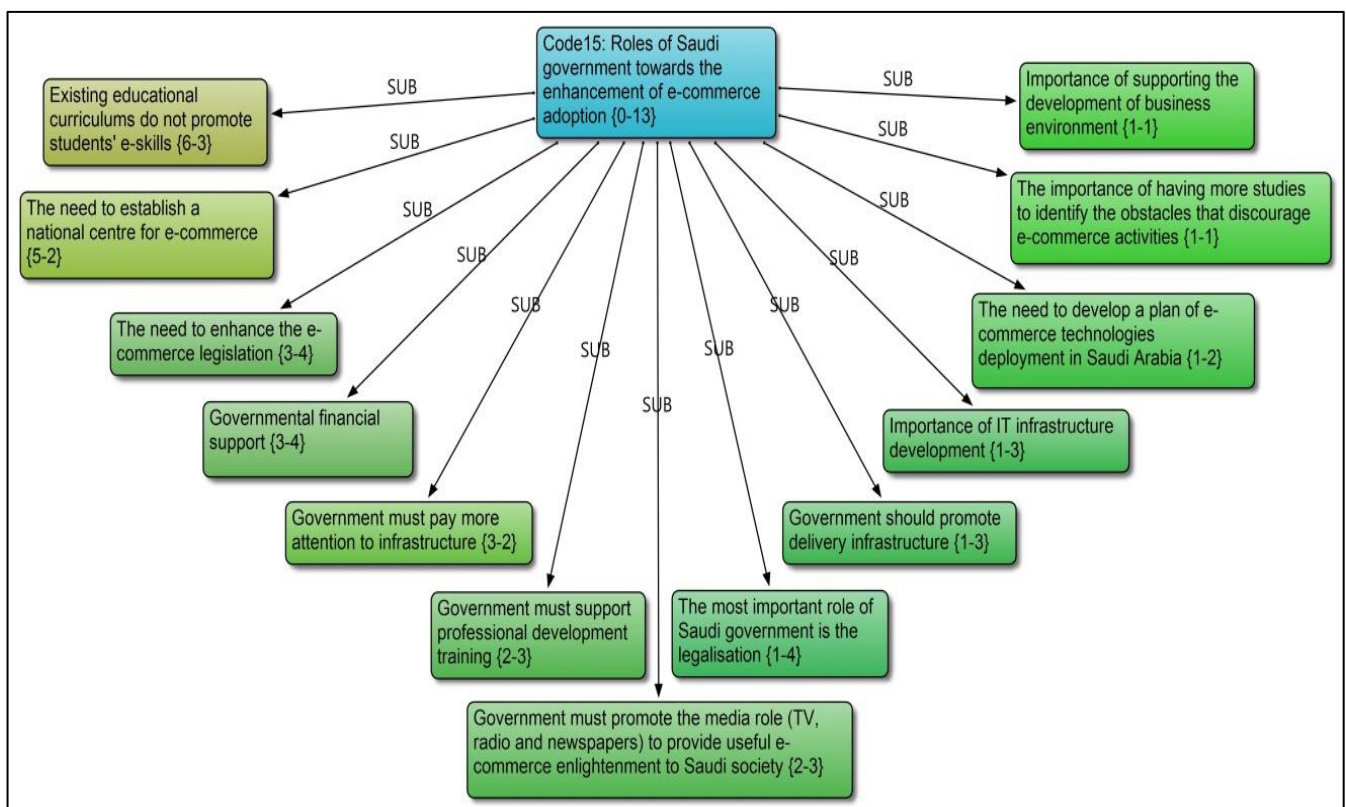


Figure 6.18. Roles of Saudi government in enhancing e-commerce adoption

Figure 6.18 shows the network view of this code and the thirteen subcodes that have been mentioned by the government departments' representatives to spotlight the actions that

should be considered by the government to enhance e-commerce adoption in the country. First, the government represented by the Ministry of Education must pay more attention to enhancing the curriculum to be more relevant to the modern lifestyle, especially with respect to computer literacy. Second, there is the need to establish a national centre for e-commerce to address all e-commerce responsibilities and governance. Third, more attention should be paid to e-commerce legislation by activating the current e-commerce and cybercrime laws and by continuing to adjust them to fit the Saudi business environment. Next, the government must offer good financial and logistic support to the private sector, especially SMEs. Also, more attention should be paid to ICT infrastructure not only in the main cities but also nationwide. Another governmental role is to support professional development training programmes to meet the severe shortage of experts in the country. Moreover, the government must promote the media's role in providing useful e-commerce enlightenments to Saudi society. Also, the government should pay more attention to improving the postal address system to be more accurate and cover the entire country. Next there is the need to promote and support new ICT and e-commerce research projects to fill the existing gap in the literature and to achieve a better understanding of the Saudi context. Moreover, the government should develop a national plan of e-commerce technology deployment in Saudi Arabia and support the development of the business environment.

6.1.6 Theme four: Market force

The fourth theme of governmental departments' perspective is market force e-readiness, which was addressed using three open-ended questions that cover three topics, e.g. the readiness of Saudi retailers to conduct e-commerce, the available e-shopping websites, and the readiness of Saudi consumers to use e-shopping. Figure 6.19 shows the network view of market force e-readiness, including those three core codes and their generated subcodes. The results of the qualitative analysis of the interviews conducted reveal that from a governmental perspective, Saudi retailers are ready to conduct e-commerce, but their intention is affected by many considerations, such as their knowledge about e-commerce applications, the availability of web developers, and the existence of consumer demand. Another finding shows, however, that some participants believed that there are

many e-shopping websites in Saudi Arabia. Some others think it is still limited, and they expect it to rise over time according to supply and demand. Finally, the results reveal that the number of people who are using e-shopping in Saudi Arabia is very high, especially by the youth who are more familiar with this new technology. The following subsections provide more findings for each core code related to the market force e-readiness theme.

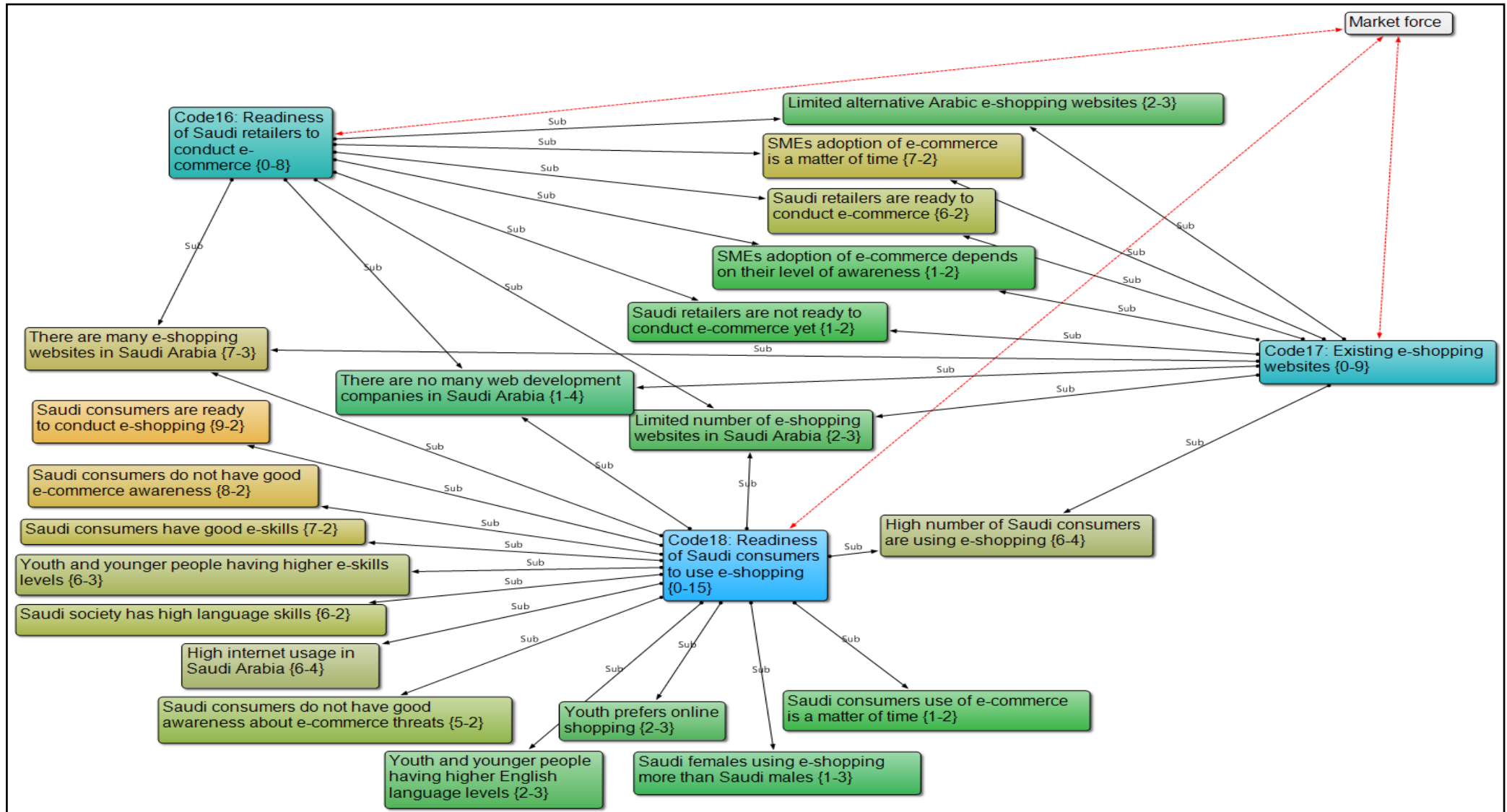


Figure 6.19. Market force network view

Code16: Readiness of Saudi retailers to conduct e-commerce

A network view of the readiness of Saudi retailers to conduct e-commerce core code is presented in Figure 6.20.

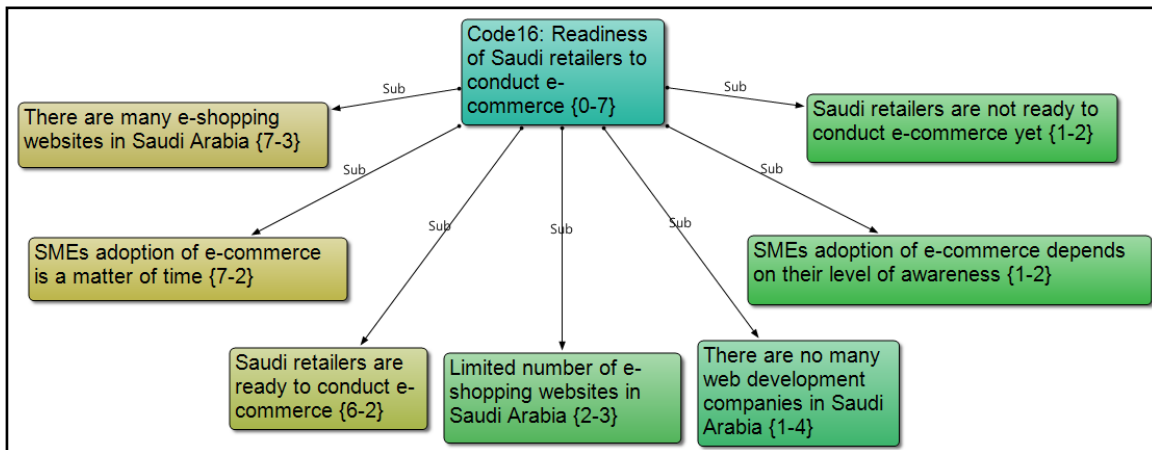


Figure 6.20. Readiness of Saudi retailers to conduct e-commerce

The results reveal that most participants believe that there are many e-shopping websites in Saudi Arabia. A few participants were not happy with that, though, as they expected more e-shopping websites offering all kinds of goods and services. Also, many participants think that the progress of e-commerce adoption in Saudi Arabia is just a matter of time. They indicated many examples of the adoption of new technologies in the past starting from radio, TV, and satellite dishes to mobile phones, the internet, and social media. Moreover, the results show that many participants believe that Saudi retailers are ready to conduct e-commerce. They claimed that because of the widespread use of technology in this era, the modern lifestyle and availability of e-commerce success requirements, the retailers are ready to conduct it, but they need to have a real commitment and intention to do so.

"Certainly, I think that Saudi traders have good knowledge about e-commerce, and they are in a race against time to keep up with the modern era, including the use of technology, but it is just a matter of time, as there are already lots of Saudi e-shopping sites." P7

Another finding reveals that there is a distinct shortage of web developers in Saudi Arabia, which in turn is discouraging e-commerce development in the country.

"I do not think that Saudi traders are ready to conduct e-commerce because there are not many web developers in Saudi Arabia which are required to support the adoption of this technology and spread it among the retailers. This led to most of Saudi e-shopping websites are using overseas offshore ICT services now." P2

Code17: Existing e-shopping websites

The second core code related to the market forces' e-readiness theme is about existing e-shopping websites in Saudi Arabia.

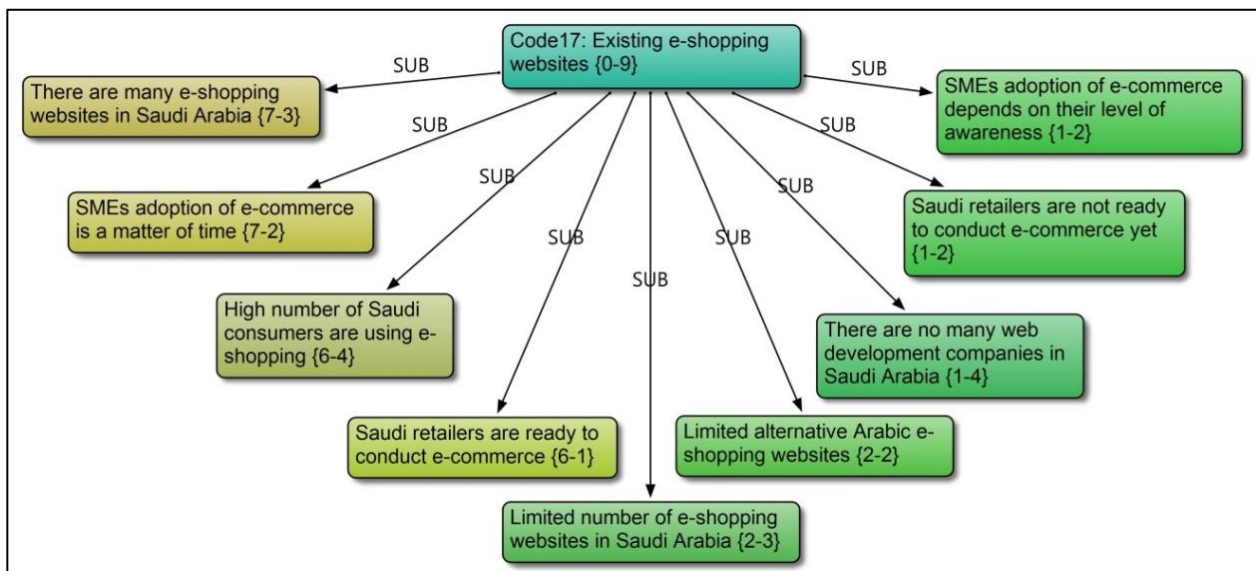


Figure 6.21. Existing e-shopping websites

Figure 6.21 shows the network view of this code. The result reveals that most participants believe that there are many e-shopping websites in Saudi Arabia which can meet the consumers' needs at least at this stage. However, the Saudi market is considered as one of the largest markets in the region for numerous reasons, such as demographical characteristics and the power of the economy. Therefore, this necessitates more attention being paid to promote e-commerce applications nationwide in the future.

"Yes, we note that there are many companies that have begun to offer e-shopping services now, and I think certainly that this number will increase in the future to

meet the Saudi market's needs. As you know, the Saudi market is the biggest in the area, and it can accommodate a lot of business." P6

Another finding indicated that many participants think that SMEs' adoption of e-commerce is just a matter of time. They believe that e-shopping sites are new technology to Saudi society, so it will develop according to several variables, such as supply and demand, people's preference, reliability, and ease of use. However, many participants indicated that there are a high number of Saudi consumers who are already using e-shopping, and they spent about sixteen billion Saudi Riyals (£3.2 billion) on online shopping in 2014. Moreover, many participants indicated that Saudi retailers are ready to conduct e-commerce, but their intention depends on some considerations, e.g. their level of awareness and knowledge about e-commerce, the availability of good web developers, and the availability of good infrastructures in the country.

"Saudi Arabia is the biggest spender in the Middle East on ICT at the moment, including all the related sectors such as infrastructures, banking services, and even mail service, which will ensure the growth of e-commerce adoption in the future; therefore, the issue is just a matter of time." P1

" The knowledge of e-commerce is limiting the division of e-shopping locally, and the high rate of reported growth of e-commerce may not reflect the true size of that growth. But, the continuous practice of e-shopping with the availability of infrastructure and smart devices and youth enthusiasm will help a lot to increase e-shopping growth significantly soon. According to recent reports, 32 percent of internet users in Saudi Arabia have already bought products online, making up 3.7 million people or 12 percent of Saudi Arabia's population. The value of their purchases was SR 16 billion during the past year, indicating the willingness of Saudi citizens to shop online." P3

Code18: Readiness of Saudi consumers to use e-shopping

Figure 6.22 shows the network view of the last core code related to the market forces' e-readiness theme, which is about Saudi consumers' readiness to use e-shopping.

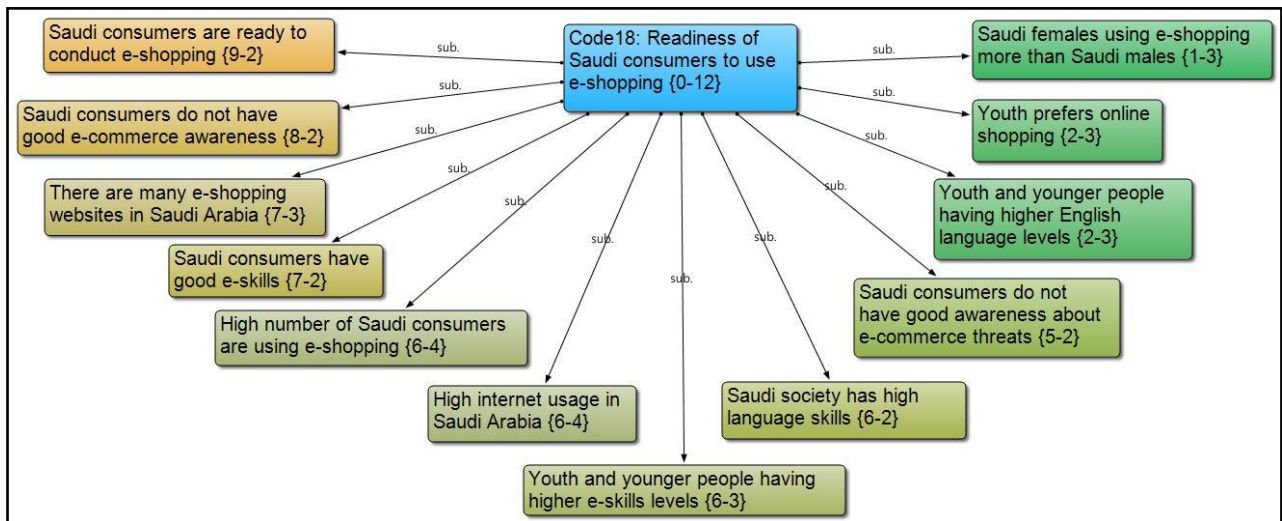


Figure 6.22. Readiness of Saudi consumers to use e-shopping

The results reveal that internet usage in Saudi Arabia is very high, and interesting findings indicated that Saudi consumers are ready to conduct e-shopping and that there are already a lot of people using this new way of shopping.

"Saudi Arabia tops Arab countries in terms of the growth of the e-commerce market, which stood at 12 billion riyals (2.4 billion GBP) in light of the high number of e-commerce users—3.5 million users—representing 14.26 percent of the Saudi population. This would enhance the position of the Kingdom as an ideal base for the e-commerce market in the region. Also, this growth would show the readiness of the Saudi citizen to successfully use e-shopping." P1

Also, most participants believe that Saudi consumers, especially youths and younger people, have good e-skills and English language skills, which help them use such technology. This has led to youth preferring online shopping over other social segments. Another finding in this regard indicated that Saudi females are using e-shopping more than Saudi males because they find it easier as they live in a very conservative society.

"Statistics also indicate that the Saudis have the highest usage of YouTube, Twitter, and Facebook, and we are at the top of the global statistics list for the use of the World Wide Web. This is a clear indication of the extent of Saudi users' capabilities and skills related to modern technologies. However, the youth and younger people are most familiar with these skills, but they are keen to teach their parents. It is rare

to find a house devoid of small technological experts who educate relatives on those skills to use computers, the internet, and mobile phones, and sometimes this person does not exceed twelve or ten years old. Of course, this is part of their generation and their life." P1

However, from the governmental perspective, Saudi consumers do not have good e-commerce awareness, especially about its threats. Moreover, many participants indicated that there are a sufficient number of Saudi e-shopping websites right now, but they are willing to have more and a wider variety.

"The reality of consumer e-commerce awareness in Saudi society is that it is very weak. However, society is willing to receive e-commerce awareness enlightenment. Therefore, the ministry is striving to cover this shortfall in different ways. Also, do not forget that the responsibility of awareness cannot be placed on the Ministry of Commerce only!! In my view, many others must pay attention to make their clients aware of their own business, such as commercial banks and e-shopping websites. Also, do not forget the role of the media, education, and even the family because with awareness, there will be a system whereby a consumer can protect him/herself from e-commerce threats and fraud." P7

6.1.7 Theme five: Supporting industries' e-readiness

The supporting industries' e-readiness theme has been addressed using five open-ended questions that cover telecommunication services, technology infrastructures of financial institutions, quality of banking services, the postal system and services, and governmental roles to enhance supporting industries' promotion of e-commerce across the country. These topics represent the five core codes related to the theme of supporting industries' e-readiness (Figure 6.23).

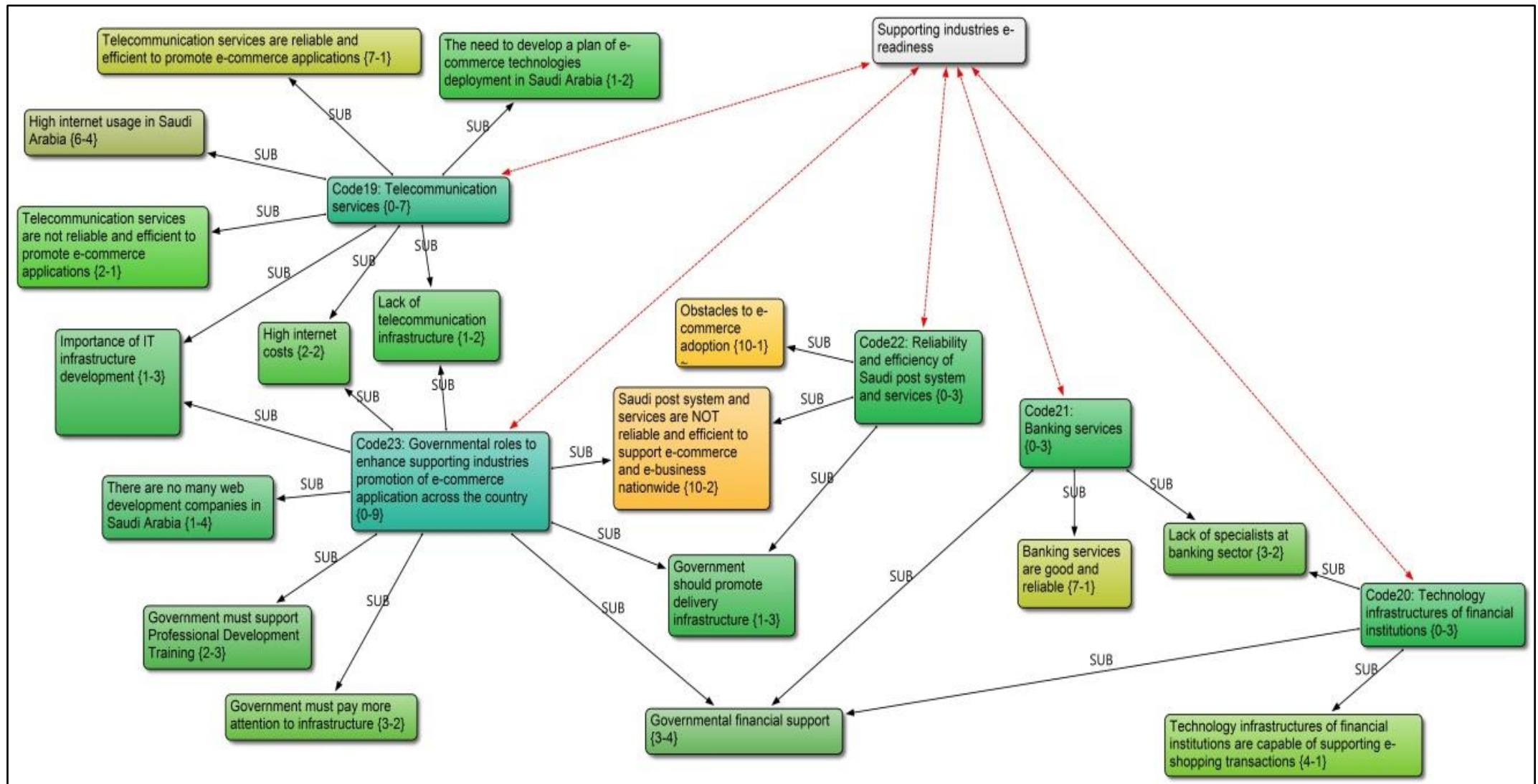


Figure 6.23. Supporting industries' e-readiness network view

The results show that from a governmental perspective, telecommunication services are reliable and sufficient to promote e-commerce applications; however, attention needs to be paid to keeping up with rapid developments in this field and to making sure that the infrastructure is sufficiently capable to meet business and individual's needs. Moreover, in terms of governmental roles, most participants agreed that the most important role of the Saudi government in enhancing e-commerce adoption nationwide is to solve the postal system problems at this time. They claimed that the main reason that limits e-commerce growth in the country is the obvious failure of the postal system. Furthermore, results reveal that the banking services and infrastructure offered by Saudi commercial banks are reliable and sufficient to promote e-commerce applications in the country. However, some participants indicated a lack of banking specialists in some cases. More details about these results are presented in the following sections.

Code19: Telecommunication services

The network view of telecommunication services core code to discover the governmental perspective on the quality of services offered by Saudi telecommunication providers as an important supporting industry to enhance e-commerce applications in the country is shown in Figure 6.24.

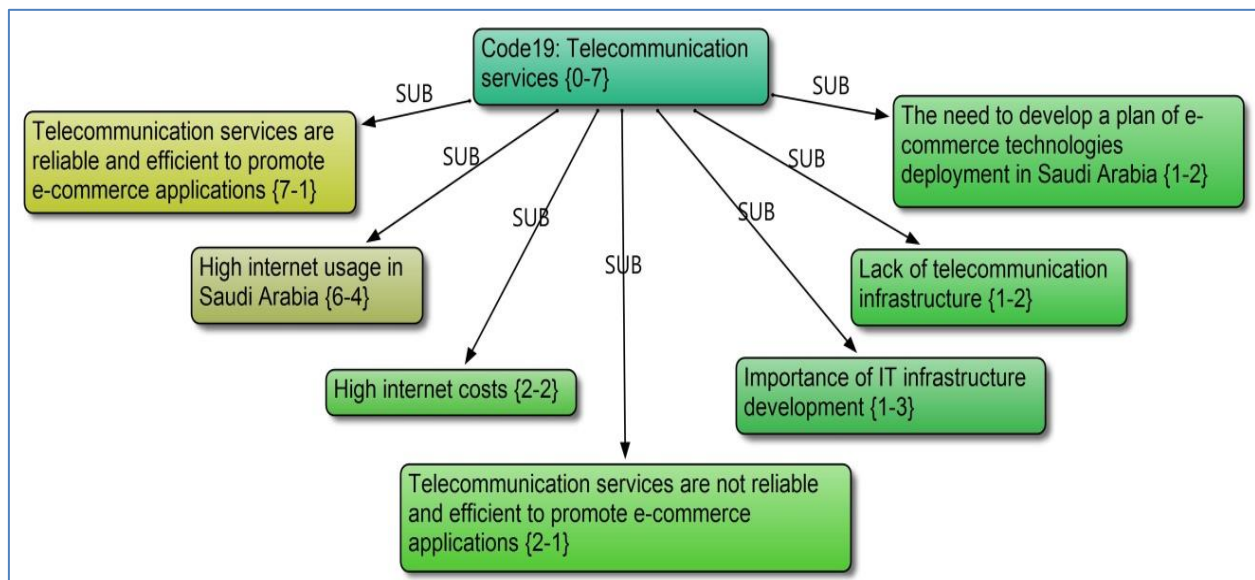


Figure 6.24. Telecommunication services

The results reveal that telecommunication services are reliable and sufficient to promote e-commerce applications; however, a few participants argued that they do need to be enhanced, especially in rural areas across the country. They believe that the quality of the telecommunication services provided in the main cities is much better than in the countryside because of the lack of infrastructure in these areas.

"I think that the infrastructure of telecommunications is inadequate, especially in the rural areas and small villages, and this is unfair because, as you know, there are too many such areas in Saudi Arabia. As well, there is the high cost of access to the internet, which is considered the highest in the region and possibly the world."

P3

Another finding indicated that internet usage in Saudi Arabia is the highest in the region, which reflects the capability of this service to support all related applications, such as e-commerce. However, another finding indicated that the internet costs are very high in Saudi Arabia compared to neighbouring countries, which means that the telecommunications sector should consider lowering the costs of their services to promote internet usage across the country.

"Telecommunications services in Saudi Arabia are reliable and match the highest international standards. They also encourage traders to adopt e-commerce initiatives by conducting promotional and advertising programmes about the services they provide." P5

"Our statistics indicate that the Saudis are the highest in the use of YouTube, Twitter, and Facebook. Also, we are at a higher ranking in the global statistics of internet usage." (P1)

Code20: Technology infrastructures of financial institutions

The technological infrastructure of financial institutions is another core code related to supporting industries' e-readiness. Figure 6.25 shows the network view of this core code, including its three subcodes that stemmed from the results.

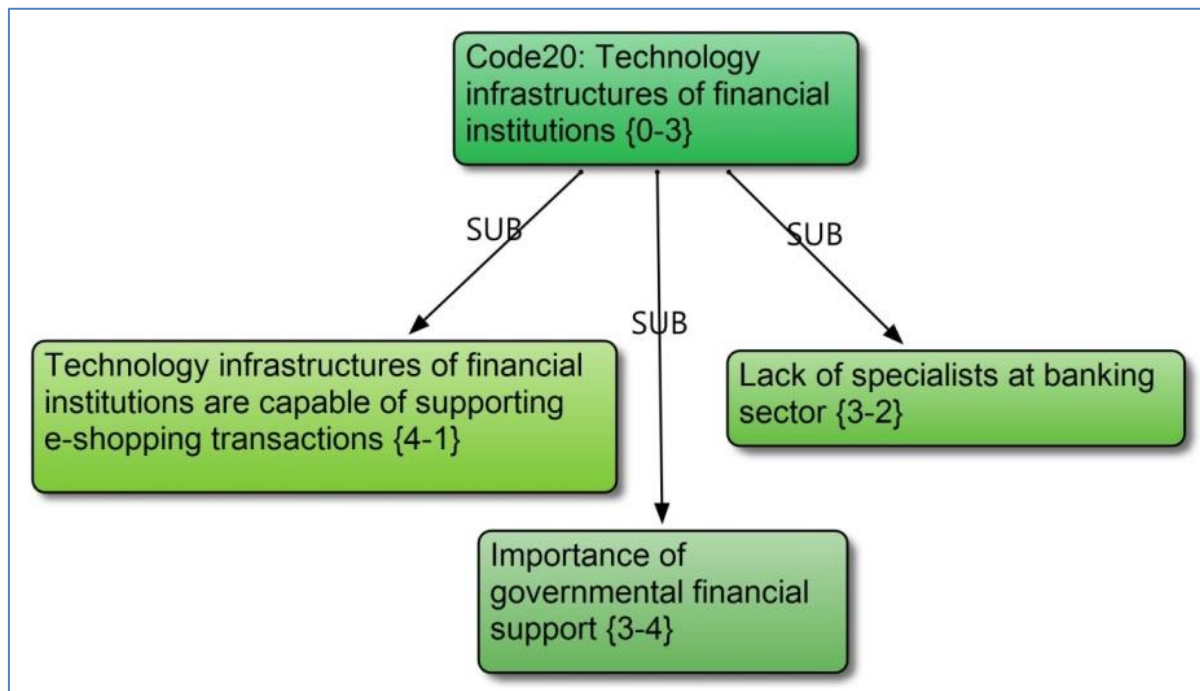


Figure 6.25. Technology infrastructures of financial institutions

Some participants indicated that technology infrastructures of financial institutions are sufficiently capable of supporting e-commerce transactions. They claimed that they were considered some of the most developed in the area. However, a few participants indicated the importance of governmental financial support to the banking sector as they share lots of common interests. The last finding in this regard indicated that there is a lack of specialists in the banking sector, which certainly impacts e-commerce in the country.

"Without a doubt, the Saudi banks have very high-quality standards, and in my opinion, they can sufficiently support e-commerce applications, especially if the e-commerce market shows high demand for these services. Then, they can develop their infrastructure to match this demand. Also, some Saudi banks are already providing merchant and CASH-U e-payment services to small and medium businesses." P5

"In terms of hardware infrastructure, I think they have excellent equipment, but the problem is in the competencies, as many of the employees are unqualified. In other words, they cannot support the e-commerce markets as required." P3

Code21: Banking services

Another related core code to supporting industries' readiness concerns the existing banking services of Saudi commercial banks. Figure 6.26 shows the network view of this code.

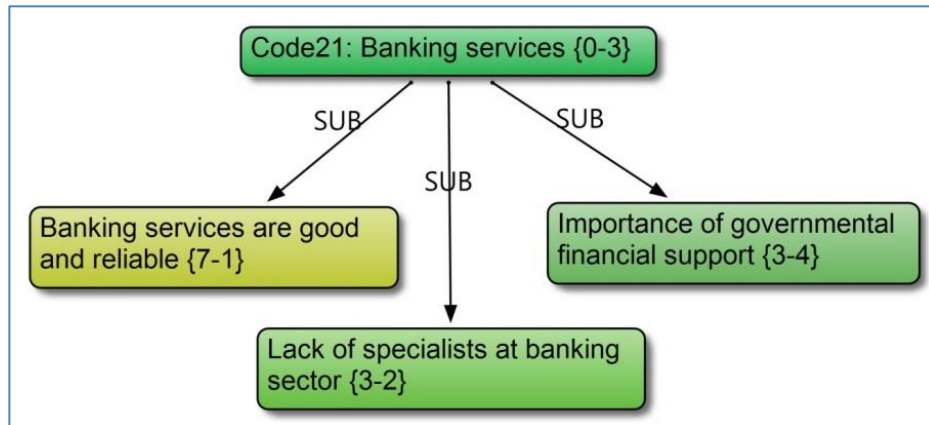


Figure 6.26. Banking services

Most participants stated that banking services provided by Saudi commercial banks are good, reliable, and match the highest international banking services standards. However, one participant claimed that only three banks out of twelve Saudi commercial banks provide e-commerce banking services at this time.

"As I mentioned before, Saudi banks have very good infrastructure and services; however, their e-commerce support is very limited. Now there are only three Saudi banks offering e-commerce services out of twelve Saudi banks. These banks are the NCB, SAMBA, and Al Rajhi, as well as for the latter two, their services are considered as very limited in this area. In my view, this is due to the novelty of e-commerce in Saudi Arabia. Thus, in the sense that if they found a good interest in this field, then all the banks would be racing to provide the best services as we have seen in e-banking services, stocks trading, applications of mobile phone devices and many other high-quality services." P1

Moreover, a few participants claimed that Saudi banks lacked specialists in modern financial technology, which impacts their capability to support e-commerce applications. The last finding regarding banking services indicates the importance of Saudi government

support, as the Saudi government is considered the largest spender on the financial sector in the area.

"in terms of hardware infrastructure, I think they have excellent equipment but the problem is in the competencies as many of the employees are unqualified or in other words, they cannot support the e-commerce markets as required" P3

Code22: Reliability and efficiency of Saudi postal system and services

One more important core code related to supporting industries' e-readiness is the reliability and efficiency of the Saudi postal system and services. Figure 6.27 shows the network view of this code.

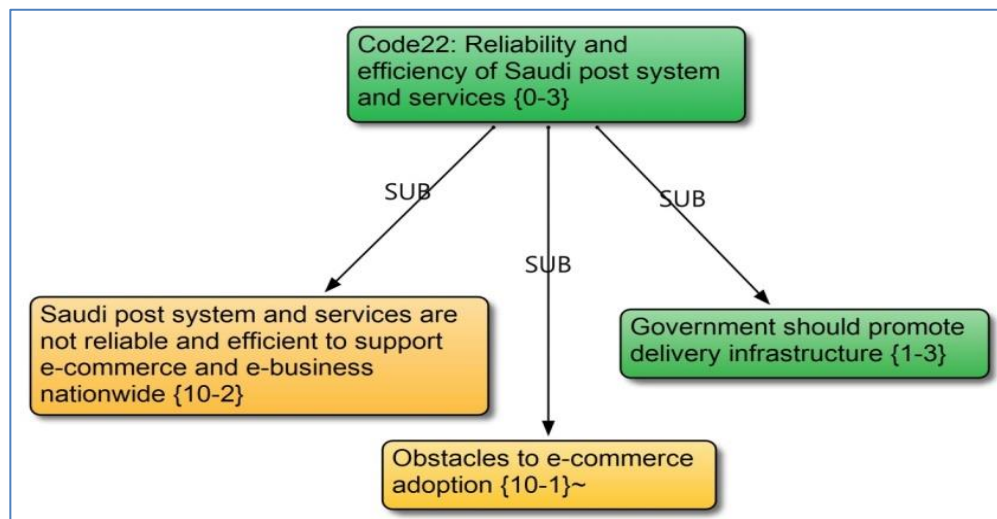


Figure 6.27. Reliability and efficiency of Saudi postal system and services

The results reveal that from the government representatives' view, the Saudi postal system and services are not reliable nor sufficient to support e-commerce nationwide, which seems to be the most important factor discouraging e-commerce adoption in Saudi Arabia. Almost all of the participants believe this to be true. They mentioned the failure of the postal system and services more than twenty times during the interviews.

"Unfortunately, the Saudi postal system is considered one of the biggest obstacles to the development of electronic commerce in Saudi Arabia due to the old bad system, which was used for decades as well as with the new system since it has a lot of failures in terms of accuracy and comprehensiveness of the various regions

of the Kingdom, which required resorting to alternative options, such as the international companies (DHL, FedEx, and Aramex), which are more expensive for the seller or the buyer, but more reliable." P1

"Many consumers are establishing the word trust as a barrier that prevents them from their electronic shopping. Also, they state a lack of confidence in the arrival of any goods they buy online. Unfortunately, Saudi postal services are disappointing in this context. So, we can consider that poor postal service is one of the obstacles to the development of electronic commerce in Saudi Arabia." P3

Moreover, the participants indicated that to enhance e-commerce applications nationwide, the government must pay particular attention to solving the postal system problems, especially the postal code address system as the most important infrastructure required to support e-commerce adoption.

Code23: Governmental roles to enhance supporting industries to promote e-commerce application across the country

The last core code related to supporting industries' e-readiness concerns the role of the Saudi government in supporting industries to promote e-commerce applications across the country.

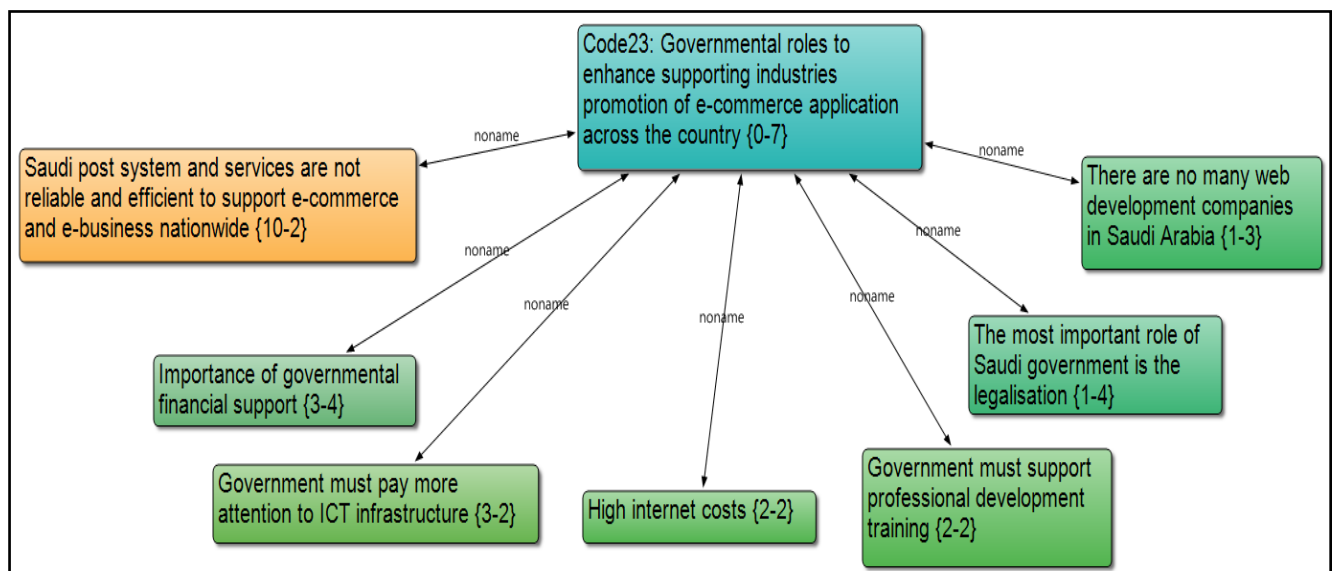


Figure 6.28. Governmental roles to enhance supporting industries to promote e-commerce application

This code includes several roles suggested by government representatives that should be considered by the Saudi government to enhance supporting industries so they can promote e-commerce adoption in the country. At the top of the list, the government must pay more attention to enhance the postal system in the country. Second in importance is governmental financial support. Third, the government must pay more attention to the ICT infrastructure. Then, the government must support national professional development training programmes. Next, the government should enforce telecommunication companies to reduce internet service costs. Also, the government should support and encourage web developers. Finally, the government should pay attention to the legalisation.

6.1.8 Conclusion

Whereas this research aims to achieve an in-depth understanding of the current status of e-commerce in Saudi Arabia and to investigate the factors affecting its adoption nationwide, this chapter presents the qualitative analysis of the governmental perspective interviews, which were conducted with eight representatives of governmental organisations that govern e-commerce activities nationwide. Analysed data gathered by these semi-structured interviews using deductive qualitative analysis have been presented.

The results indicate that from a governmental point of view, consumer awareness is insufficient; however, Saudi consumers have good e-skills. Moreover, the Saudi government has assured the public that they promote all means to enhance consumer awareness nationwide through the media. A downside identified by the results is that existing educational curriculums are insufficient to promote students' e-skills. Furthermore, the government has many plans to promote consumer awareness, i.e. activating media roles, awareness workshops, awareness competitions, and campaigns.

Regarding the impact of social concerns and religion, the results reveal that there are no conflicts between the Islamic religion and e-commerce, although Saudi society prefers traditional shopping due to cultural reasons. Although English language skills are essential, they have no impact on the Saudi consumers' intentions to use online shopping as long as alternative Arabic shopping websites are available.

Also, the results confirm the existence of effective laws to protect consumer rights and combat cybercrime. Saudi Arabia has effective laws to protect consumer rights. However, the government must consider its role in enhancing e-commerce adoption nationwide, e.g. paying more attention to improving the postal address system, curriculum enhancement, e-commerce legislation, ICT infrastructure, professional development training programmes, and promoting the media's role.

In terms of market forces' e-readiness, Saudi retailers are ready to conduct e-commerce, but their intention is affected by many considerations, such as e-commerce awareness, the availability of web developers, and the existence of consumer demand. On the other hand, e-shopping websites in Saudi Arabia are still limited, but the number of people who are use e-shopping in Saudi Arabia is very high, especially among the youth.

Finally, regarding supporting industries in Saudi Arabia, telecommunication services are reliable and sufficient to promote e-commerce applications at this time. Moreover, in terms of governmental roles, most participants agreed that the most important role of the Saudi government in enhancing e-commerce adoption nationwide is to solve the postal system problems, as they seem to be the main hindrance to e-commerce adoption in the country. Furthermore, the results reveal that banking services and infrastructure offered by Saudi commercial banks are reliable and sufficient to promote e-commerce applications. There is, however, a lack of banking specialists. These results and their inferences will be discussed in the discussion chapter, where the alignment between the different perspectives considered by this research will also be presented.

6.2 Introduction to Data Analysis of Supporting Industries' Perspective

This research aims to achieve an in-depth understanding of the current status of e-commerce in Saudi Arabia and to investigate the factors affecting its adoption nationwide. The focus of this chapter is to analyse the data gathered by semi-structured interviews, using deductive qualitative analysis. This chapter presents the qualitative analysis of supporting industries' perspective interviews, which were conducted with nine representatives of supporting industries' organisations, which support e-commerce activities and services nationwide. The interviewees were from several Saudi commercial banks, ICT providers, and the Saudi postal system.

The analysis process of supporting industries' perspective interviews is presented in the next sections. First, by way of a reminder, the model construction and research hypotheses for supporting industries' interviews analysis are summarised, including reference to the interview questions relevant to each hypothesis in section 6.2.1. Second, a summary of the data analysis strategy and coding are presented in section 6.2.2. Thereafter, the analysis of the five themes (constructs) is presented in sections 6.2.3–6.2.7, followed by a conclusion.

6.2.1 Model construction and research hypotheses

The supporting industries' perspective represents one of four perspectives to be examined in terms of their influence on e-commerce adoption in Saudi Arabia, including SMEs' perspective, consumer perspective, governmental perspective, and supporting industries' perspective.

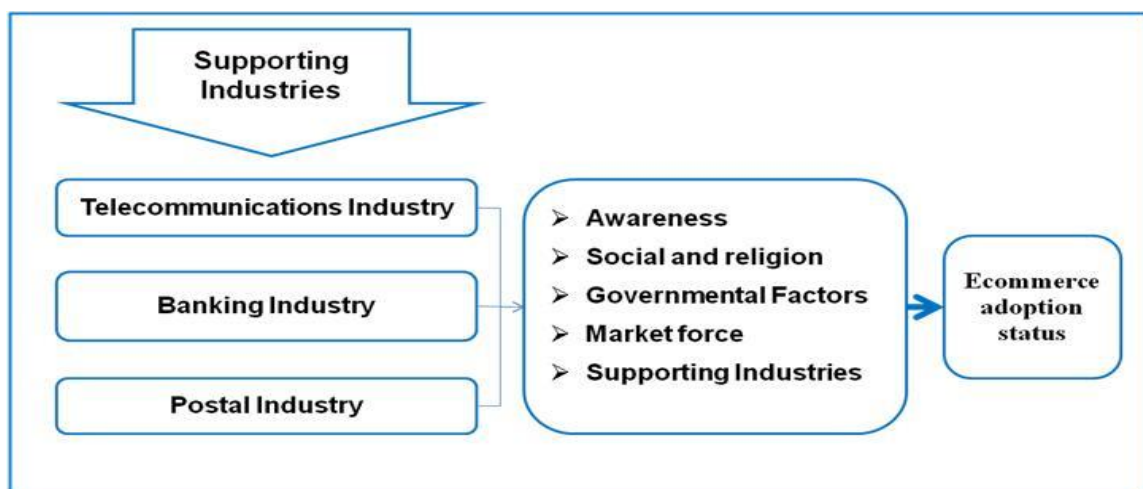


Figure 6.29. Constructions of supporting industries' perspective

Figure 6.29 shows the predesigned constructs affecting e-commerce adoption from the supporting industries' perspective. These constructs cover aspects considered by many researchers in the literature as factors that affect e-commerce adoption in developing countries (AbouSaber, 2007; Al-Ghaith et al., 2010; Al-Harby, 2006; Al-Hudhaif & Alkubeyyer, 2011; Al-Khilaiwi, 2007; Almoawi & Mahmood, 2011; Al-Somali et al., 2010; Braun & Clarke, 2006; Kurnia et al., 2009; MacGregor & Kartiwi, 2010; Mbamba, 2006; Molla & Licker, 2005b; Nathan, 2009; Sait et al., 2007; Selim, 2008; Syed Shah Alam, 2011; Uzoka et al., 2007; Wymer & Regan, 2005; Yu et al., 2010). Also, the exploratory study conducted supported the existence of these effects in Saudi Arabia, i.e. consumer awareness, social and religion, market forces, and supporting industries.

From Figure 6.29, awareness was the first theme to be addressed using two open-ended questions to assess supporting industries' role to enhance clients' awareness and to assess the media role from the supporting industries' perspective. Second, the social and religion theme was addressed by using two open-ended questions covering conflicts between Islamic regulations and e-commerce and the relation between e-shopping use and cultural aspects. The third theme, government e-readiness, was addressed using three open-ended questions covering the legal environment of the Saudi market, the governmental commitment towards e-commerce promotion, and the governmental support to industries to enhance e-commerce adoption. The next theme, market force e-readiness, was addressed using three open-ended questions covering the readiness of Saudi retailers to conduct e-commerce, the availability of e-shopping websites, and the readiness of Saudi consumers to use e-shopping. The last theme, supporting industries' e-readiness, was addressed using six open-ended questions covering telecommunication services, the technology infrastructure of financial institutions, quality of banking services, the postal system and services, governmental roles to enhance supporting industries' promotion of e-commerce application across the country, and the role of supporting industries to promote e-commerce adoption.

6.2.2 Data analysis strategy and coding

Whereas a relevant literature review and the conducted exploratory study have been used to formulate the hypotheses to be examined from a supporting industries' perspective, deductive content analysis has also been adopted (MacGregor & Kartiwi, 2010; Yu et al., 2010). Thematic analysis was used as an analytic method. Braun and Clarke (2011, p. 6) define thematic analysis as "a method for identifying, analysing, and reporting patterns (themes) within data". As mentioned previously, the interviews investigated five preselected themes from supporting industries' perspectives. Also, the interview schedules comprised sixteen questions in total, in addition to follow-up questions as required. These sixteen questions represented the core codes, as they addressed the main topics that covered each theme. Therefore, the suggested six phases of thematic analysis by Braun and Clarke (2011, p. 35) was adopted. So, the analysis started with transcribing the interview data. Thereafter, an initial open coding analysis of the interviews produced a total of 78 codes. The follow-up intensive coding resulted in 35 codes directly linked to the sixteen core codes.

Moreover, ATLAS.ti 7 software was used to assist the researcher to organise, edit, and analyse the qualitative data. The software was very helpful and it produced network views to show the relationships between the core codes and subcodes. Also, the numbers in brackets in the network views respectively indicate the frequencies of the code and the number of its relationship to other codes.

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading, and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant touch potential theme.
4. Reviewing themes:	Checking in the themes work about the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, the final analysis of selected extracts, relating to the analysis of the research question and literature, producing a scholarly report of the analysis.

Table 6.4. Phases of thematic analysis. Source: Braun and Clarke (2006, p. 35)

Sections 6.2.3–6.2.8 present the analysis of the five themes and core codes with their relation to the subcodes including some quotation examples. Furthermore, for confidentiality and anonymity reasons, the participants were given a code (P1, P2, P3....etc). The researcher used a two-way translation process, given that the interviews had to be carried out in Saudi Arabia and so had to be conducted in the Arabic language.

6.2.3 Theme one: Awareness

The first theme from the supporting industries' perspective was awareness, which was addressed using two open-ended questions to assess supporting industries' role to enhance clients' awareness and to assess the media role from the supporting industries' perspective. Figure 6.30, awareness theme network view, shows the two core codes covering the awareness theme. This figure also shows the subcodes of each core code, including the code densities in brackets, i.e. the number on the right indicates the code frequency, and the number on the left indicates the number of its relations to other core codes.

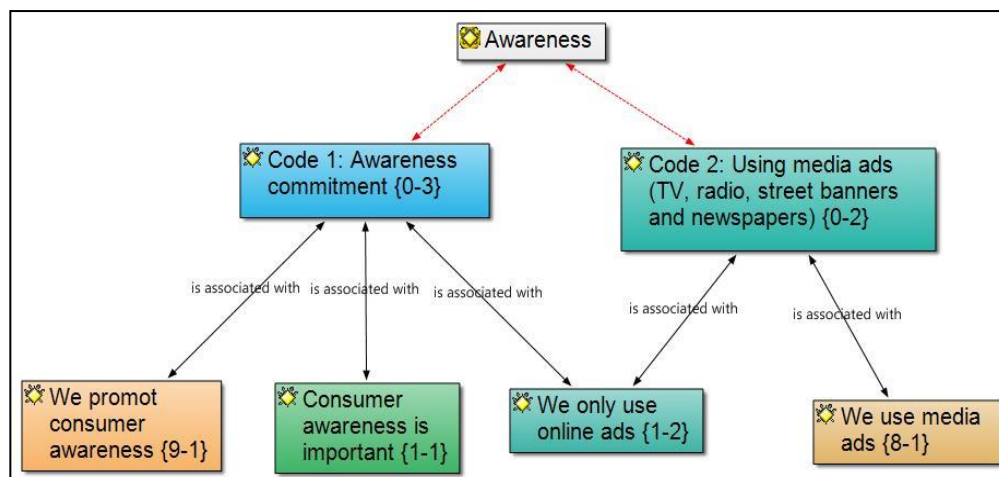


Figure 6.30. Awareness theme network view

The results indicate that from supporting industries' perspective, awareness commitment is sufficient. Also, the participants stated that they promote through the media all means to enhance clients' awareness nationwide. The following subsections report the results of the awareness theme in detail.

Code1: Awareness commitment

Figure 6.31 shows the network view of the assessment of clients' awareness core code. Almost all participants ensured that they were committed to making their clients aware in order to enhance their knowledge about e-commerce applications and the services they offer. For example, P1 said:

"Certainly, we are keen to make sure that our clients are aware of all services we offer, and this is a very important part of our marketing policy. We use all the marketing channels available, e.g. television, radio, street ads, and publications. We also use the internet as a modern channel to market our services."

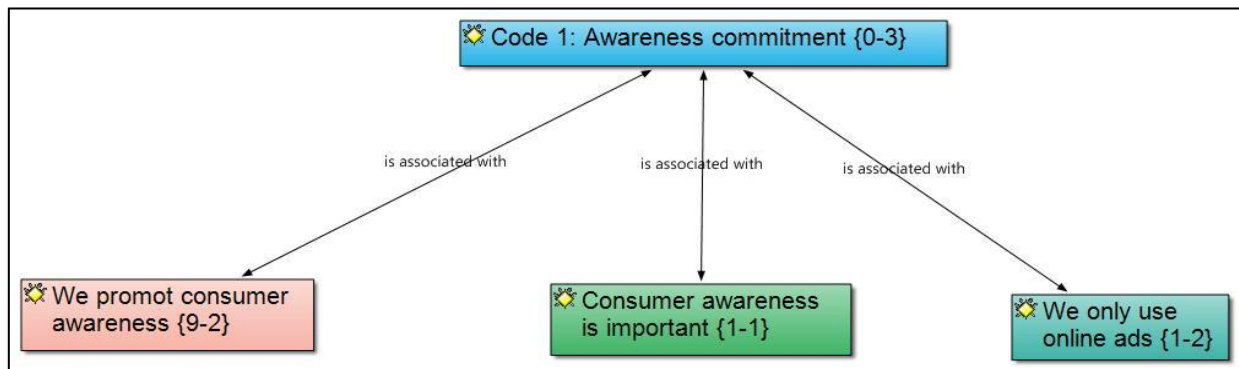


Figure 6.31. Awareness commitment

Also, some participants stressed the importance of consumer awareness, as cybercrimes are at higher levels in Saudi Arabia now, e.g. P7 said:

"As a web developer, we hope that those users are aware of all the advantages and threats of e-commerce so that they can protect themselves from cybercrime before they start shopping online, as the rates of cybercrime are high in the Saudi market, which may lead to many people having a fear of online shopping unless they have a good knowledge of the safe ways to buy from the internet and to protect themselves against internet fraud and cybercrime." P7

Moreover, because of the business nature of web developers, they claimed that they only use online ads:

"As you know, NARD is a new corporation, so our marketing role is limited, but we seek to reach our clients through advertising campaigns directed on the internet."
P7

Code2: Using media ads (TV, radio, street banners, and newspapers)

Figure 6.32 shows the network view of using media ads core code. Most participants confirmed that their organisations are using the available advertisement channels to inform their clients about the available services offered and to promote clients' awareness about e-shopping's advantages and threats. For example,

"We live in an advertisement era which is the fastest way to reach our clients, so, yes, we use all advertising channels possible, as the competition in this aspect is great between us and other operators." P8

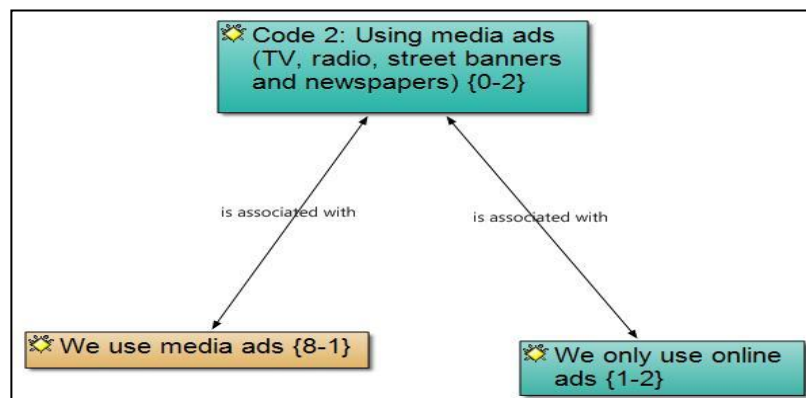


Figure 6.32. Using media ads

6.2.4 Theme two: Social and religion

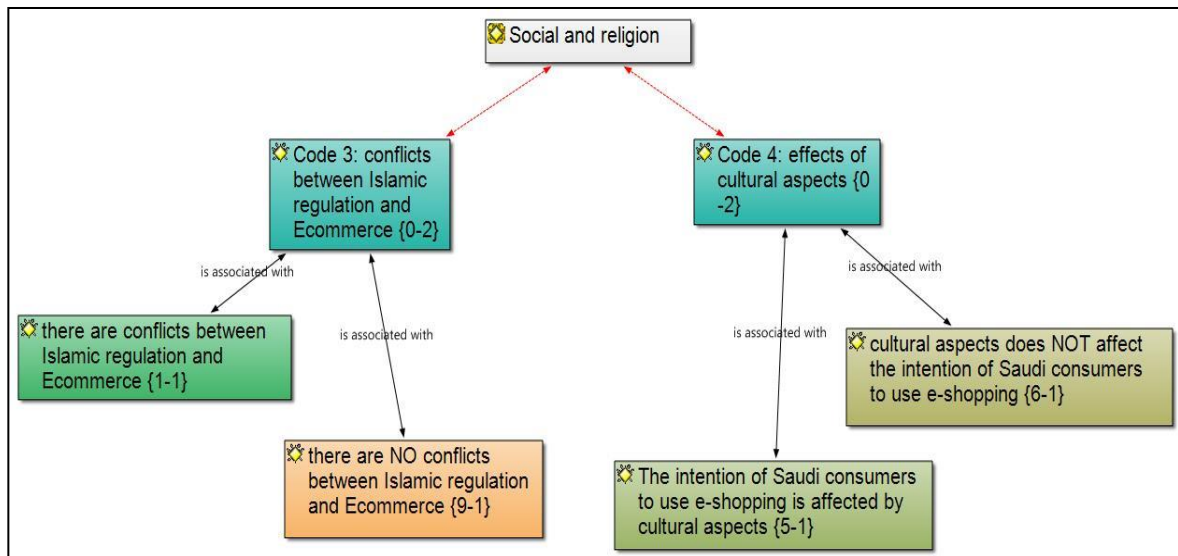


Figure 6.33. Social and religion network view

Figure 6.33 shows the network view of the social and religion theme, which was addressed through two open-ended questions covering conflicts between Islamic regulations and e-commerce, and the relation between e-shopping use and cultural aspects. The results reveal that there are no conflicts between the Islamic religion and e-commerce, although Saudi society prefers traditional shopping because of cultural reasons. More detailed findings are presented in the following subsections.

Code3: Conflicts between Islamic regulations and e-commerce

Figure 6.34 shows the network view of the conflicts between Islamic regulation and e-commerce. Certainly, almost all of the participants believe that there are no big conflicts between Islamic regulations and e-commerce in general but some small issues such as credit interest and the physical inspection of purchased items, which were resolved by the Islamic legalisation committees by finding suitable alternatives to the credit cards, e.g. SADAD, prepaid cards.

"I can assure you that there is no conflict between e-commerce and Islamic religion, as it is a modern channel for sales and purchases with all the Islamic conditions considered for sale and purchase." P2

"I do not think there are disputes between Islamic law and e-commerce. We noticed some disagreement on payment methods, such as credit cards, so the bank's Sharia Committee resolved this issue by providing appropriate alternatives such as prepaid credit cards and other payment alternatives, as they are interested in studying such conflicts with Islamic religion and trying to solve them." P1

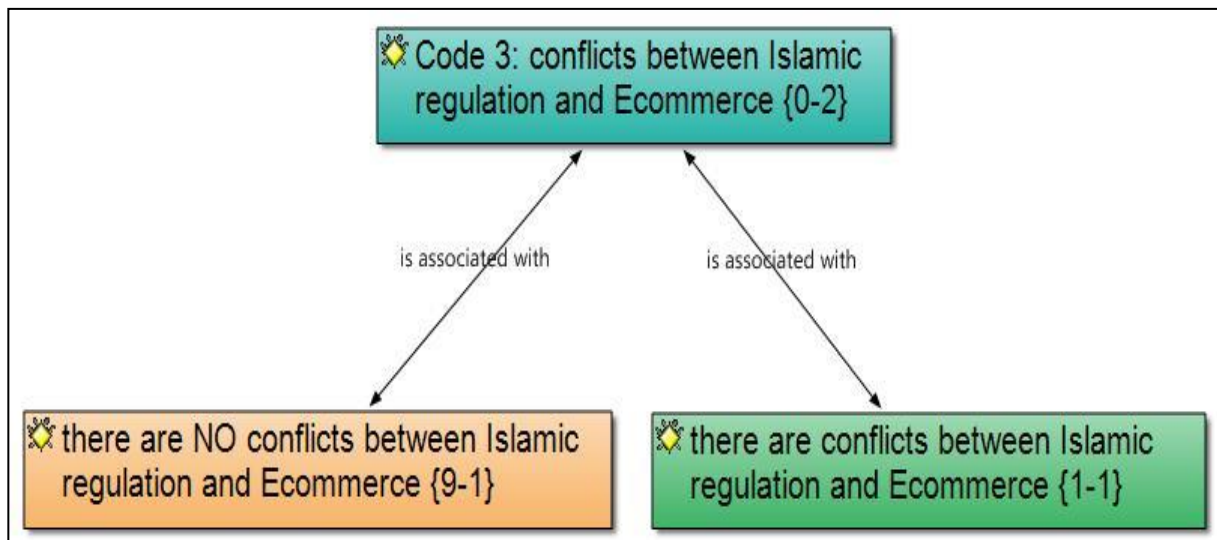


Figure 6.34. Conflicts between Islamic regulations and e-commerce

Code4: Relation between e-shopping use and cultural aspects

The other core code under theme two (social and religion) concerns the relation between e-shopping use and cultural aspects. Figure 6.35 shows the network view of this core code. The results show that the participants are divided between agree and disagree, as some participants believe that the intention of Saudi consumers to use e-shopping is not affected by cultural aspects as long it is in the line with Islamic regulations:

"I do not think there is an impact of Saudi culture on this kind of trade as long as it is in line with Islamic law. Our Saudi society is religious, and its decision on whether it will accept or reject something is always based on Islamic law." P3

"At the moment there is a revolution in Saudi society towards the use of electronic commerce although traditional market turnout is still at the top; people, especially the youth, intend to use online shopping. This shows that there is no conflict between community culture and e-shopping." P5

"If you look at the high statistics of the electronic buying and selling operations in Saudi Arabia, you will know that there is no impact of Saudi culture on e-shopping usage, as Saudis accept the use of electronic commerce. It dramatically exceeded all our expectations with the increasing demand for e-shopping" P9

On the other hand, some participants claimed that the intention of Saudi consumers to use e-shopping is affected by cultural aspects, such as the preference for physical and traditional shopping since it is considered a social activity in Saudi society. So, as a result of this, supporting industries take into account the supply-and-demand law when they invest to provide a new service to support e-commerce activities in Saudi Arabia. For example, one participant mentioned that

"Visiting the markets in Saudi Arabia is considered as a way to enjoy free time for all family members, which may affect their intention to use e-commerce. This, in turn, will affect the banking sector, as we invest a lot of money to provide various e-commerce banking services, which may not be profitable for a longer time than we expected. Therefore, our e-commerce support services are limited according to the supply and demand." P4

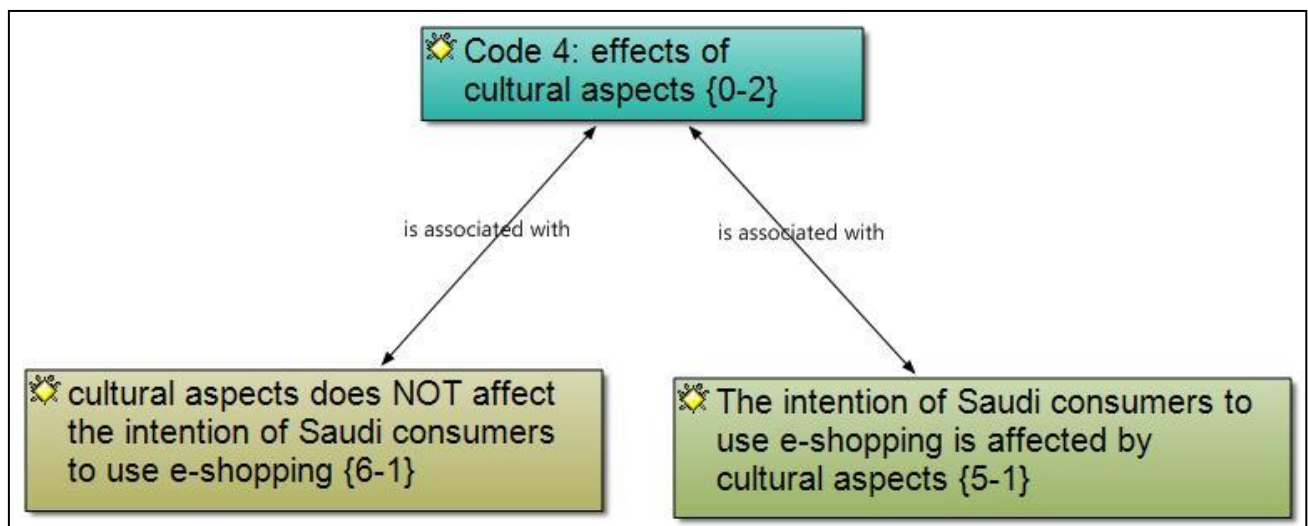


Figure 6.35. Relation between e-shopping use and cultural aspects

6.2.5 Theme three: Government e-readiness

Figure 6.36 shows the network view of government e-readiness theme, which was addressed using three open-ended questions covering the legal environment of the Saudi market, the governmental commitment towards e-commerce promotion, and the roles of the Saudi government to support supporting industries to promote e-commerce adoption. The results confirm the appropriateness of the legal environment of the Saudi market to enhance e-commerce applications. Also, most of the participants believe that Saudi government support has made a strong commitment to promoting e-commerce adoption nationwide by supporting all of the supporting industries. More detailed findings are presented in the following subsections.

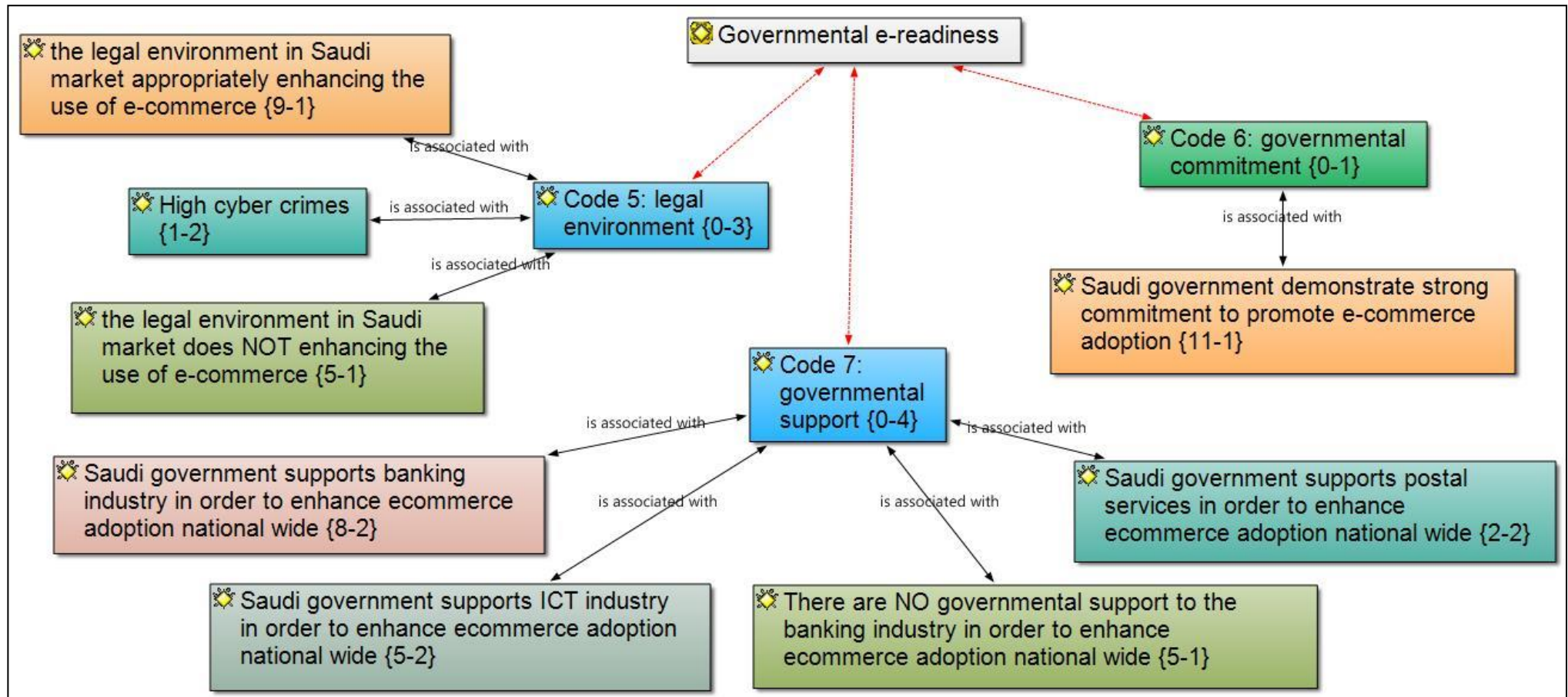


Figure 6.36. Government e-readiness network view

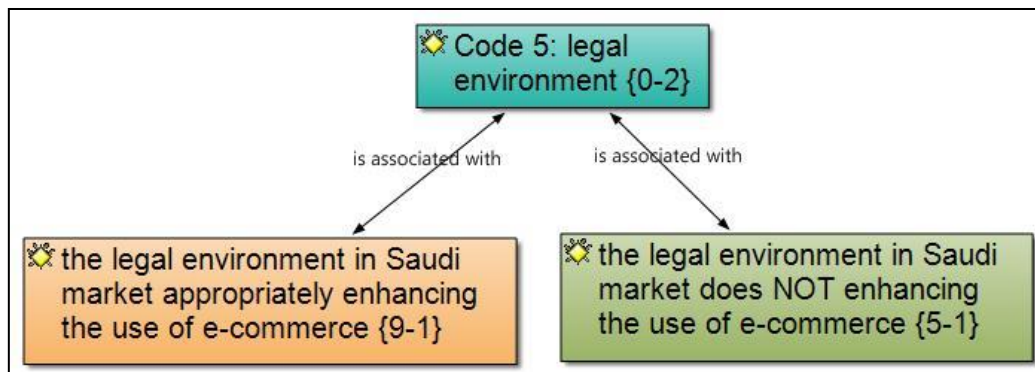
Code5: Legal environment of Saudi market

Figure 6.37. Legal environment of the Saudi market

Figure 6.37 shows the network view of code five which is about the legal environment of the Saudi market. Certainly, all of the participants believe that the legal environment in the Saudi market appropriately promotes the use of e-shopping. They claim that the legal environment in Saudi Arabia is considered the best in the area in terms of the powerful e-commerce legalisation and support of the government. Also, some participants indicated that the Saudi government keeps organising e-commerce activities nationwide through their constant creation of e-commerce legalisation rules and laws to enhance the legal environment that belongs to e-commerce activities.

"The business environment in Saudi Arabia is considered one of the best in the region regarding the strength of legislation and its support for various commercial activities, including electronic commerce. Recently, a government system has been announced to regulate and manage electronic activities in the country, which will encourage and support this new technology in selling and buying." P2

"The Saudi government is working hard to regulate the electronic commerce in the country, as evidenced by the laws and regulations that are issued continuously to improve the legislative environment in the country about electronic commerce and its various activities." P3

"I completely agree that the business environment in Saudi Arabia is excellent because of the efforts of the Ministry of Commerce which governs the various business activities in the Kingdom and issues the laws regulating these commercial activities in coordination with the Ministry of Justice." P8

Moreover, some of the participants who agreed on this, however, believe that the legal environment in Saudi market has some issues that reduce its success, such as inappropriate laws for the Saudi business environment, the failure to follow up these regulations, their effectiveness, and the lack of awareness about business legalisation laws.

"The problem is in the lack of follow-up of these regulations and its effectiveness by the officials so we suggest the Ministry of Commerce to work to find an appropriate mechanism to follow up the effectiveness of these laws to improve the ability of the legislative environment to support e-commerce activities." P3

"Commercial legislation exists, but in my opinion, it is inappropriate to the needs of our market and our trade. Much of the legislation in force is just incomplete attempts of the Ministry of Commerce to regulate business activities and may be taken from other countries' contexts that are entirely different from ours, which makes it utterly useless in the Saudi market." P9

"Certainly, the legislative environment in the country is very appropriate, but we lack the disclosure and awareness of the laws in force in terms of electronic commerce as there are many systems that are ignorant of customers as well as traders and even the judiciary are sometimes unaware of these regulations and laws, which reduces its effectiveness." P4

Code6: Governmental commitment towards e-commerce promotion

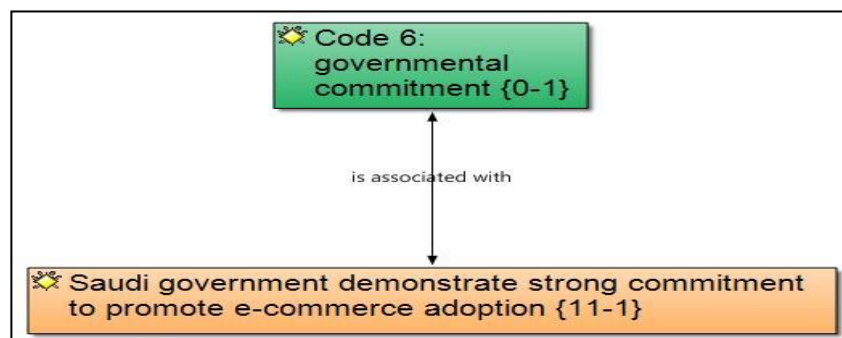


Figure 6.38. Governmental commitment towards e-commerce promotion

Figure 6.38 shows the network view of governmental commitment. All participants agreed that the Saudi government demonstrates a strong commitment to promoting e-shopping

by supporting e-commerce activities nationwide. They mentioned many indications to support their claim, such as the introduction of the SADAD payment system (Almoawi & Mahmood, 2011) and that the Saudi e-market has become one of the largest e-markets in the region:

"The government is keen to support the electronic markets and their various activities through the development of laws governing electronic transactions and the electronic trading system, as well as the launch of SADAD payment system, which enables the customers to pay for their purchases safely." P2

"The electronic market in Saudi Arabia has become one of the largest markets in the region, indicating the success of the plans set by the government to support this type of trade." P3

Some other participants indicated the creation of the electronic crimes law (Wymer & Regan, 2005), the electronic transactions law (Turki, 2017), and sending thousands of students to study e-commerce related sciences abroad.

"In my opinion, the Saudi government has a strong commitment to encouraging the adoption of e-commerce and is committed to ensuring consumer protection in several ways, such as the creation of electronic crimes law and e-commerce dealings system." P4

"Yes, the Saudi government is committed to promoting e-commerce and its various applications in all possible ways. They established the legislative laws for e-commerce and sent thousands of students to study this specialisation abroad, making Saudi Arabia one of the first countries in the region in this field." P5

Moreover, other participants mentioned the finding of the ICT infrastructure of the highest standards and the establishment of one of the largest web development and hosting platforms in the world (NARD) based in Saudi Arabia (Abed et al., 2015). Also, finding E-Mall was mentioned, which is the first platform in offering e-commerce solutions and services in the Kingdom (Saunders et al., 2009).

"Certainly, e-commerce has many benefits that the government seeks to achieve for citizens within the country, which has led to the development of laws and

regulations for the governance of e-commerce as well as building the necessary infrastructure for this technology with the highest international standards." P8

"One of the biggest signs of the Saudi government's commitment to promoting e-commerce applications is the support and encouragement we have received from the Saudi government to establish one of the largest web development and hosting platforms in the world. Based in Saudi Arabia, so we will be offering our services worldwide in terms of hosting services and websites development." P7

Code7: Governmental support

This shows the network view of code seven about the governmental support to supporting industries towards the enhancement of e-commerce adoption and its four subcodes that have been mentioned by the interviewees. In terms of governmental support to the banking industry, there were some conflicts between the participants, as most of them believe that the Saudi government supports the banking industry although a few participants disagreed with that. Each view has evidence. For example, the participants who stated that the Saudi government promotes the banking industry indicated the guarantee programme (KAFALAH) that guarantees small and medium companies at Saudi banks (Kyngäs & Elo, 2008). Also, some other participants mentioned the great facilities that the banking industry has from the government to promote e-commerce applications. One more piece of evidence about governmental support to the banking industry was the SADAD system, which was initiated by the government to facilitate online payments (Braun & Clarke, 2006).

"The government has provided and will continue to provide a lot to support the various applications of e-commerce in Saudi Arabia. It provides facilities for traders as well as financial guarantees for any impediments they may have with banks. The Ministry of Commerce has established a guarantee programme (KAFEL) that guarantees small and medium companies with Saudi banks when they request financing. So, the trader has the funding required to run his or her small business." P2

"The banking sector is a key partner of the government in supporting e-commerce applications. While the banking sector provides all supporting services and e-payment, which is the most important in terms of trading, so the government

provides great facilities for the banking sector to promote e-commerce applications." P3

On the other hand, a few participants disagreed with this, as they believe that banking services supporting e-commerce activities are just a sort of business. In other words, commercial banks are providing those services according to the supply and demand, whether the government promotes them or not. So, these people believe that the Saudi government does not support the banking industry with respect to e-commerce adoption in the country.

"The Saudi government did not play a major role in supporting the banking sector in terms of e-commerce support services due to the bank's policy. We have been the first to provide e-payment services in Saudi Arabia. To date, only three or four of the thirteen commercial Saudi Banks have done so." P1

"The banking sector does not rely heavily on government support, as it is the one who provides support to the government to stabilise its economy. As for e-commerce support, it is a market need that depends on supply and demand. Commercial banks will compete to provide banking services to the beneficiaries of traders and individuals if there is a high demand for such services." P4

Also, many participants indicated that the Saudi government supports the ICT industry nationwide.

"The Saudi government supports the ICT sector in the Kingdom. The industry, since its establishment, was a public sector established by the government to build the telecommunications infrastructure in Saudi Arabia, and it does support the industry even after it privatised." P5

"Yes, the government encourages the ICT sector to provide the best services to support the use of e-commerce, such as the expansion of ICT infrastructure construction to cover the entire country." P8

Moreover, several participants confirmed that the Saudi government does support the postal sector and Saudi post and that it initially was a governmental organisation that has promoted e-commerce very well through several projects, such as E-Mall, E-Shipping, The National Address and Wasel Alami (Braun & Clarke, 2006; CITC, 2018a; SADAD, 2018).

"Indeed, Saudi Post is a government-based company that studies and provides all the necessary support for e-commerce, including several projects such as E-MAIL, E-SHIPPING, THE NATIONAL ADDRESS and INTERNATIONAL WASEL, which support purchases from international websites that refuse to ship to Saudi Arabia, or that may cost the customer too much for the shipment." P9

6.2.6 Theme four: Market force

The fourth theme of supporting the industries' perspective is about market force e-readiness, which been addressed using three open-ended questions covering three topics, e.g. the readiness of Saudi retailers to conduct e-commerce, the available e-shopping websites, and the readiness of Saudi consumers to use e-shopping. Figure 6.39 shows the network view of market force e-readiness, including those three core codes and their generated subcodes. The results of the qualitative analysis of the conducted interview reveal that from supporting industries' perspective, Saudi retailers are ready to conduct e-commerce. Also, most participants were expecting a significant rise in the number of e-commerce websites. Another finding showed that while some participants believe that there are many e-shopping websites in Saudi Arabia, some others think it is still limited. Moreover, the results indicated that the number of individual sellers who are using social media as a marketing channel is very high. Finally, Saudi individuals are ready to use e-shopping and are willing to do so. The following three subsections provide more findings for each core code of the supporting industries theme.

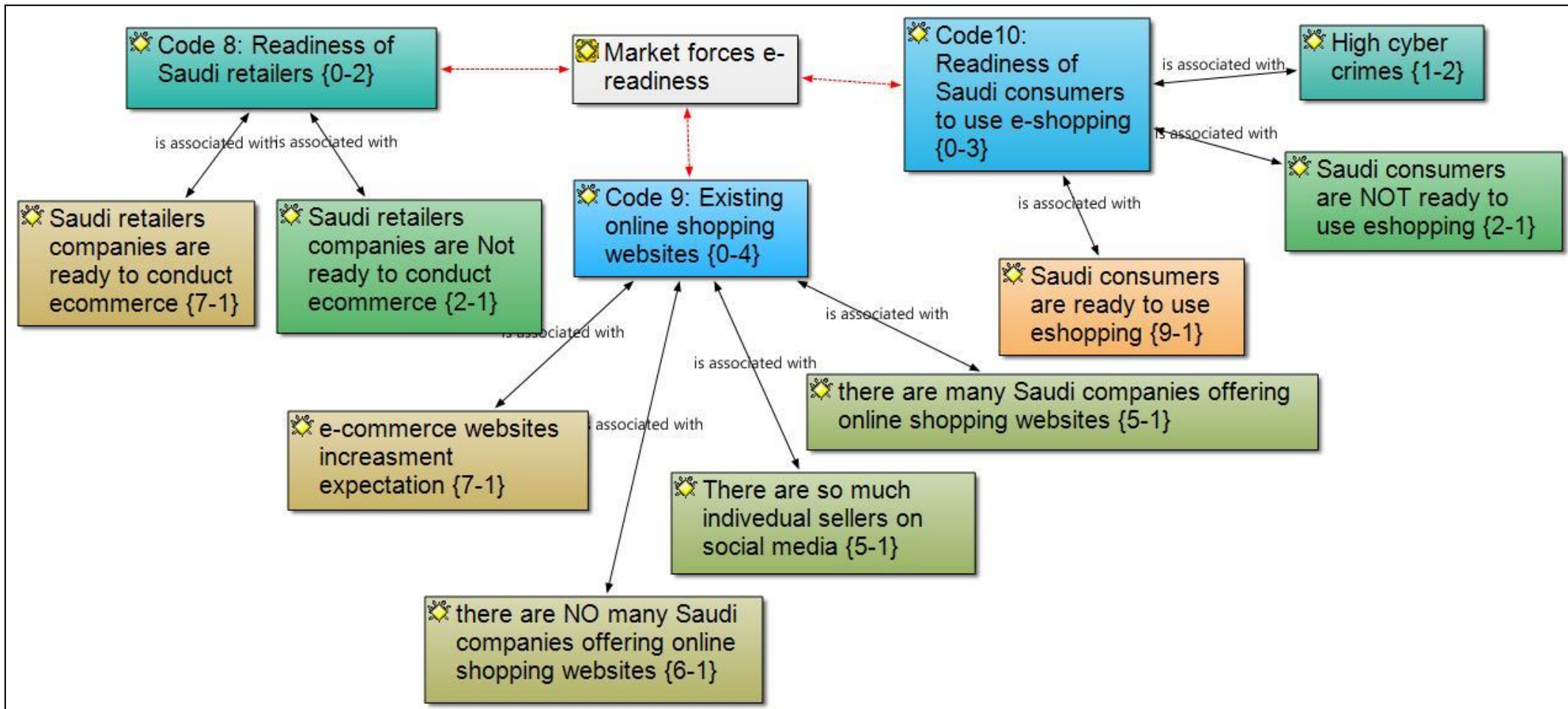


Figure 6.39. Market force network view

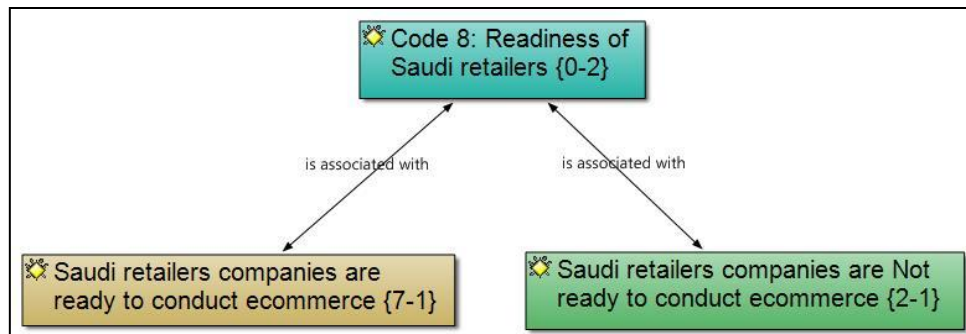
Code8: Readiness of Saudi retailers to conduct e-commerce

Figure 6.40. Readiness of Saudi retailers to conduct e-commerce

A network view of the readiness of Saudi retailers to conduct e-commerce core code is presented in Figure 6.40. The results reveal that most participants believe that Saudi retailers are ready to conduct e-commerce. They indicated many reasons for their thought, such as relative advantages, high consumer demand, the availability of good supporting services, and a good business environment.

"The readiness of retailers to conduct e-commerce depends on some variables, such as their awareness of the benefits they will get from e-commerce to market their products and also the extent to which customers need to buy these products online. In general, we can say that the number of traders who are interested in the use of e-commerce and its applications are increasing very quickly in Saudi Arabia."

P1

"Today, we are witnessing a great race among the sellers to benefit from e-commerce, starting with advertising on the internet and ending with the establishment of a comprehensive website for sale on the internet, as e-shopping is today a reality we live in, and expect it to succeed and develop even more in the near future."

P5

Code9: Existing e-shopping websites

The second core code is related to market forces' e-readiness theme is about existing e-shopping websites in Saudi Arabia. Figure 6.41 shows the network view of this code.

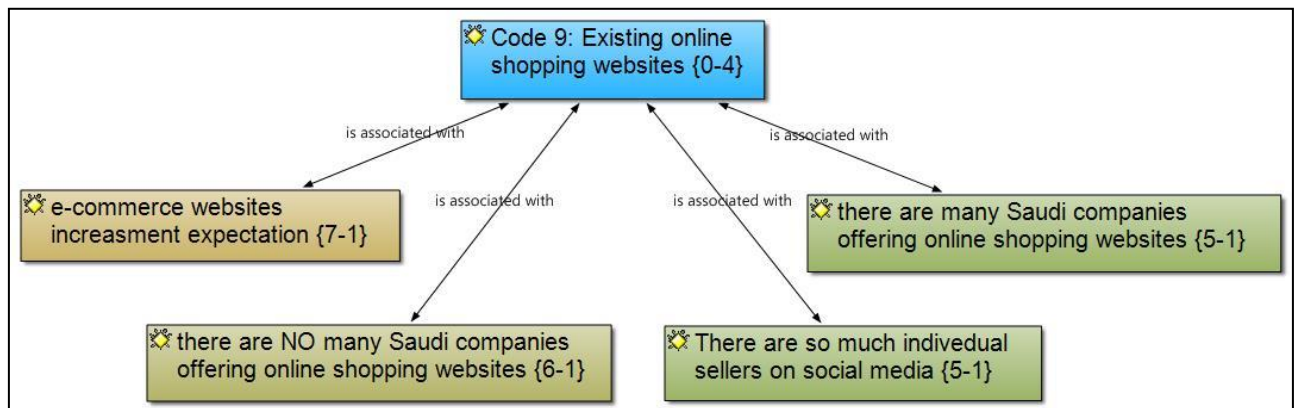


Figure 6.41 Existing e-shopping websites

The results reveal that most of the participants expect that the number of online shopping websites will increase gradually very soon according to the significant consumer demand and the availability of an adequate ICT infrastructure in the country.

"The development of e-shopping sites at present is reasonable, but we expect to increase soon. We are ready to support the traders on the Saudi market with all the necessary services for website development, hosting, and coordination with commercial banks and the banking sector to provide the best e-marketing services."
P7

"We expect shortly to increase these numbers if the Saudi traders could challenge world prices and focus more on selling within the Kingdom of Saudi Arabia by offering their products at prices commensurate with international costs. Because the Saudi consumers are now more familiar and more open to global markets through the internet and thus makes them smart shoppers with a variety of prices and specifications for all types of goods." P9

Moreover, in terms of the readiness of Saudi companies to offer online shopping websites and those who are already offering online shopping, the participants have been equally divided into supporters and oppositionists. However, both sides agreed that the existing number of online shopping websites is very limited, and there is a significant demand to have more shopping websites.

"There are not many e-shopping sites right now, but I expect it to grow in the future, God willing, as this type of marketing is considered a new experience in Saudi

society. So, it needs a long time for Saudi citizens to be familiar with using to this new shopping style." P3

"Yes, there are a lot of sites, but they do not meet the needs of the community in the Saudi market so far, and what we expect is to increase these numbers in the future according to the increasing demand of consumers to use e-shopping." P6

Also, some participants mentioned a new shopping phenomenon in Saudi Arabia, which is using social media as a marketing channel, especially by individuals (C2C) due to many advantages, such as the ease of use, inexpensive, and because it does not have any terms or conditions, which make it freely open market. This has led to some big companies offering their goods on social media too.

"If you mean the official websites of e-commerce, they are few, but the individual sellers on the social media sites have a significant presence, and their numbers are so high that they have become a phenomenon in the Saudi society nowadays. Shopping through social networking sites has led some well-known companies to display their products on these websites such as Facebook, Instagram, and Snapchat." P2

"The number of traders offering their products on the internet is insufficient due to the low demand by consumers, as a large segment of consumers prefer traditional and physical marketing. But, some prefer to buy through social networking sites. Also, many well-known companies in the present time have begun to display their products on social networking sites in addition to the individual sellers, which indicates the importance of social networking sites as a new channel for e-commerce in Saudi Arabia. Although it may be considered fairly primitive since it depends on cash on delivery and that there are no terms and conditions to make it a regulated channel for sale officially." P8.

Code10: Readiness of Saudi consumers to use e-shopping

Figure 6.42 shows that the network view of the last core code related to market force e-readiness theme is about the readiness of Saudi consumers to use e-shopping.

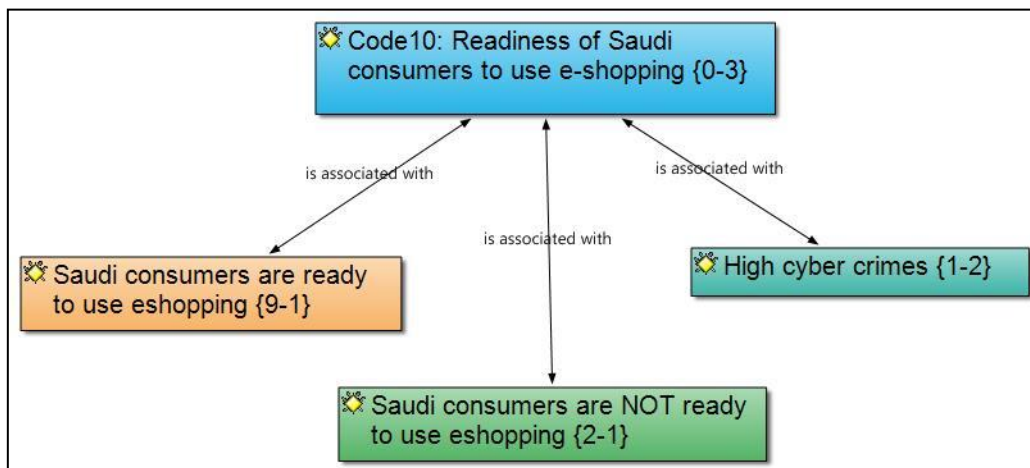


Figure 6.42. Readiness of Saudi consumers to use e-shopping

The results reveal that most participants believe that Saudi consumers are mostly ready to conduct e-shopping and there are already many people using this modern way of shopping.

"Buying from the internet has become a phenomenon in the Saudi market after it was considered a risk due to the strict laws and regulations set by the Saudi government for electronic transactions, and now we see people accept buying from the internet with confidence. However, we expect to increase the demand for electronic stores in the future." P5

"For a long time, the Saudi citizen has started shopping online from various international sites such as eBay, Amazon, etc. Now, with the availability of local e-shopping websites, the Saudi citizen has become more familiar and more inclined to use this way of shopping as it shortens the time and allows him to compare the different commodities and their prices. Therefore, we can make sure that the Saudi citizen is ready to use e-commerce. They are eager to do so, and the evidence of this is what we find in the marketing revolution on the social media networks where we see many individuals offering their products, although it is considered primitive and does not have a lot of security requirements as in the official websites for e-commerce." P9

On the other hand, only a few participants have indicated that they do not consider Saudi consumers ready to use e-shopping. They believe that there are not many people using e-

shopping yet, and compared to the other neighbouring countries, the number of e-shoppers in Saudi Arabia is relatively low.

"Currently, the number of online shoppers is small compared to the number of users in other countries. As web developers, we hope that these users will be aware of all the uses and risks of e-commerce so that they can protect themselves from cybercrime before they start shopping online. As the rates of electronic theft are high in the Saudi market at the moment, this makes many people have a fear of online shopping unless they have good knowledge about the safe ways to buy from the internet." P7

6.2.7 Theme five: Supporting industries' e-readiness

The supporting industries' e-readiness theme has been addressed using six open-ended questions covering reliability and efficiency of telecommunication services, technology infrastructures of financial institutions, quality of banking services, the postal system and services, the governmental roles to enhance supporting industries' promotion of e-commerce application across the country, and finally the role of supporting industries to promote e-commerce adoption. These topics represent the six core codes related to supporting the industry's e-readiness theme. Figure 6.43 shows the network view of this theme. The results show that from the supporting industries' perspective, telecommunication services, technology infrastructures of financial institutions, and the quality of banking services are reliable and capable of supporting e-commerce activities nationwide, whereas most participants indicated that the Saudi postal system and services are inadequate and need more enhancements to support e-commerce activities appropriately.

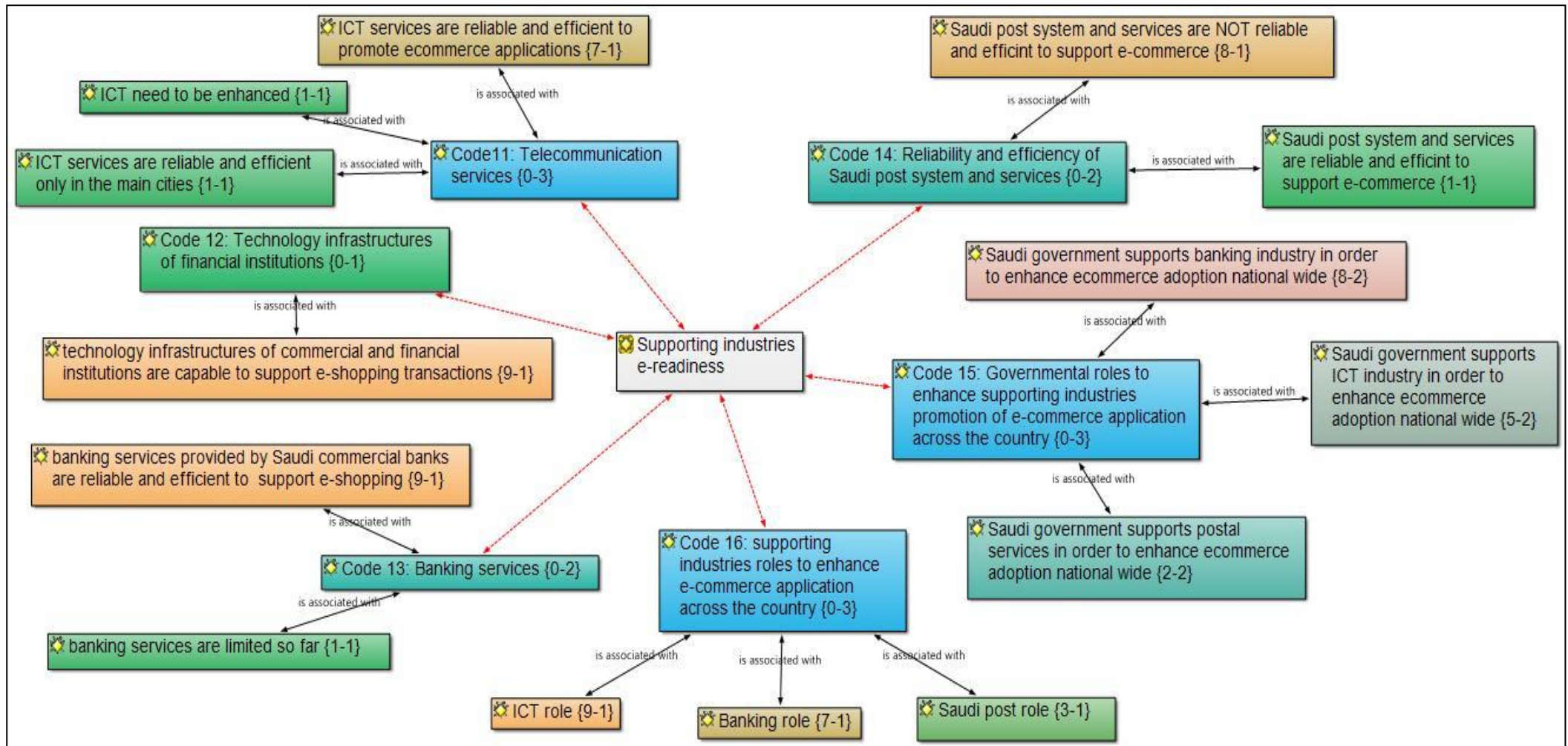


Figure 6.43. Supporting industries' e-readiness network view

Moreover, in terms of governmental roles, the results reveal that the most important role of the government is to support all of the supporting industries to enhance e-commerce adoption nationwide by providing them with more facilities and financial support. More details about these results are presented in the following six sections, followed by a conclusion.

Code11: Telecommunication service

This shows the network view of the telecommunication services core code in which the quality of services offered by Saudi telecommunication providers as an important supporting industry to enhance e-commerce applications in the country is investigated.

Most participants believe that telecommunication services are reliable and sufficient to promote e-commerce applications. However, few participants believed that the quality of the telecommunication services provided in the main cities is much better than in the countryside because of the failure of infrastructure in these areas. Also, some participants indicated the high ICT costs in Saudi Arabia compared to other countries in the region.

"The ICT services in Saudi Arabia are considered to be of the highest standards in the region, especially in the main cities, but if we look at small villages, we can see an obvious lack of coverage or quality of services in those rural areas. The telecommunications company plays its role in the main cities with a purely commercial view, but in the small villages, the provision of services costs the company large amounts of money while the revenue is not appropriate. So, this problem must be solved because there is a large segment of the target customers of e-commerce living in remote areas and for whom it is difficult to travel to the big cities to buy their essentials." P2

"Yes, ICT services are excellent and match the highest ICT standards in the world, but the cost is sometimes relatively high compared to neighbouring countries." P3

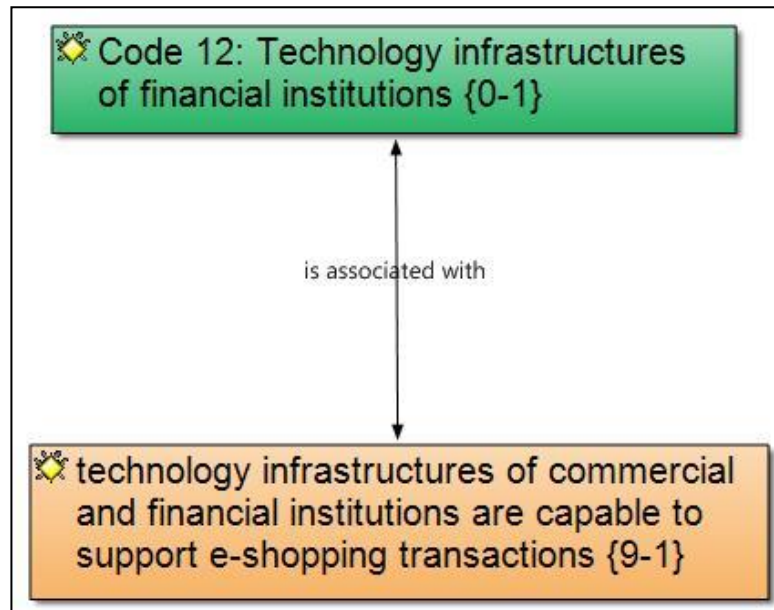
Code12: Technology infrastructures of financial institutions

Figure 6.44. Technology infrastructures of financial institutions

The technological infrastructure of financial institutions is another core code related to supporting industries' e-readiness. Figure 6.44 shows the network view of this core code and its single subcodes that stemmed from the results in which all of the participants agreed that the technology infrastructure of commercial and financial institutions is in good shape and capable of supporting e-commerce and e-shopping activities nationwide.

"certainly, we have a very advanced banking infrastructure, as the banks in the Kingdom invest a great deal in developing a strong infrastructure that is capable of facing the various challenges of the technological development we live in, especially in banking and banking services; and thus, it is ready and reliable to support e-commerce applications." P4

"The quality of the banks' infrastructure depends on the demand for different banking services. In other words, banks are considered profitable companies, so they will not invest their money in infrastructure that may not benefit them. In general, the quality of the existing infrastructure is excellent and reliable." P3

Code13: Banking services

Another related core code to supporting industries' readiness concerns the existing banking services of Saudi commercial banks. Figure 6.45 shows the network view of this code.

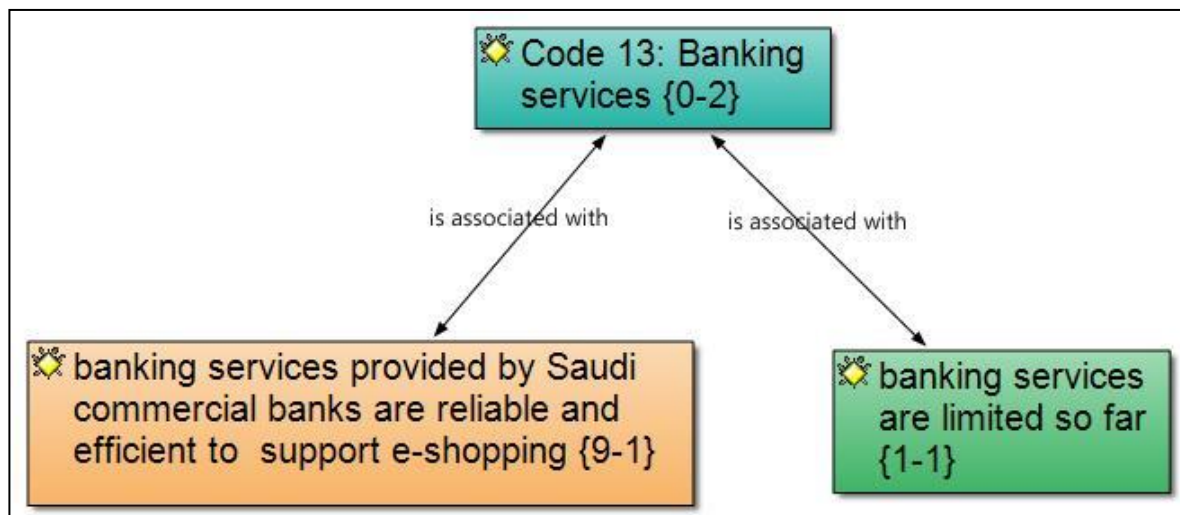


Figure 6.45. Banking services

Most participants stated that banking services provided by Saudi commercial banks are good, reliable, and match the highest international banking services standards. However, one participant claimed that although Saudi banks are ready to support c-commerce applications now, they need more expansion and enhancement to be sure that they are ready when the e-commerce demand increases in the country as is expected.

"Yes, I think it is capable of supporting various e-commerce applications. We hope that there will be more competition among banks in terms of e-commerce support services. As of now, only three out of 13 Saudi banks offer e-payment services to Saudi traders." P7

"So far, the services provided by banks to support e-commerce applications are considered reliable." P4

Code14: Reliability and efficiency of Saudi postal system and services

Another important core code related to supporting industries' e-readiness is the reliability and efficiency of the Saudi postal system and services. Figure 6.46 shows the network view of this code.

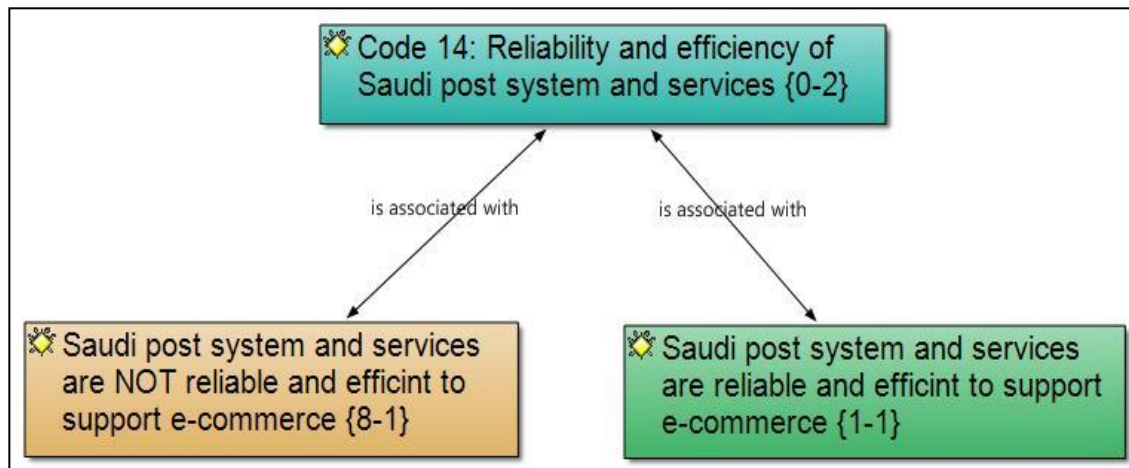


Figure 6.46. Reliability and efficiency of Saudi postal system and services

The results reveal that from a supporting industries' view, Saudi postal systems and services are neither reliable nor sufficient to support e-commerce nationwide, which seems to be the most important factor discouraging e-commerce adoption in Saudi Arabia. Almost all participants believe this to be true, but the Saudi postal representative argued against this with evidence such as the new national address system, E-Mall, and the Saudi post website which provides e-commerce users with many services.

"I do not think so, since Saudi Post is considered a terrible service because the postal address system used in Saudi Arabia is, in my opinion, a system that has failed and is not accurate, and therefore all postal services are not reliable" P1

"Recently, we have noticed a significant development or several attempts to improve Saudi Post services through many programmes such as E-Mall and the new national address system, which promises a better future for this service in Saudi Arabia. But if you ask about the current time, it is far less than the required level." P2

"The services provided by Saudi Post are reasonably good when compared to the size of the Kingdom of Saudi Arabia. Recently, Saudi Post has taken many steps

to solve the problem of addresses throughout the Kingdom of Saudi Arabia by establishing a national address system where the individuals can use the address finder to specify their address accurately using the postal code. Also, supporting the delivery and tracking of shipments through the website which is an excellent support for e-shopping users in Saudi Arabia." P9

Code15: Governmental roles to enhance supporting industries to promote e-commerce application across the country

All participants have requested that the government continue to support the various supporting industries to promote e-commerce activities in the country. Each representative has asked the government to support their own sector rather than others.

"I believe that the Saudi government supports all the different sectors that can support the national economy in general, including those sectors that support the use of e-commerce." P5

"The government should significantly support the ICT sector to support e-commerce applications." P7

Code16: Supporting industries' roles to enhance e-commerce application across the country

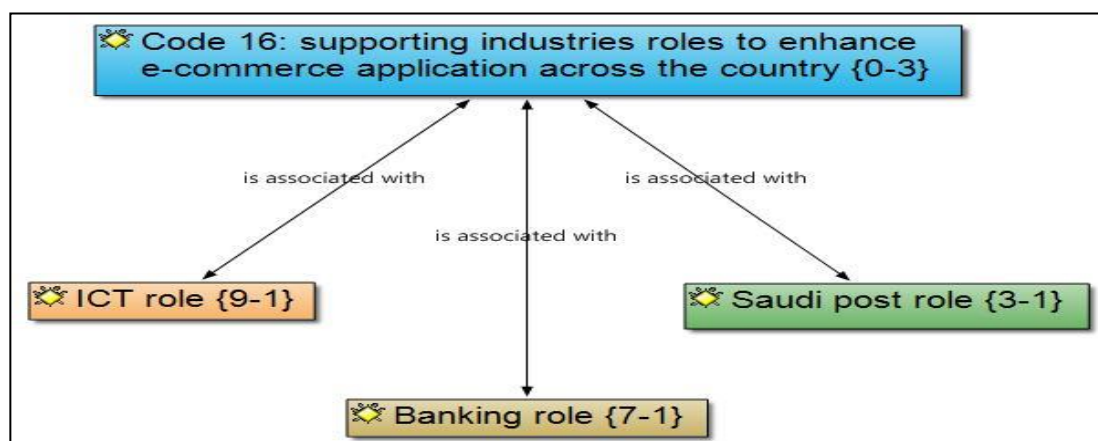


Figure 6.47. Supporting industries' roles to enhance e-commerce application across the country

The last core code related to supporting industries' e-readiness theme concerns the roles of supporting industries to promote e-commerce applications across the country. Figure 6.47 shows the network view of this code.

Almost all participants agreed that the ICT industry is playing the most important role among the supporting industries to promote e-commerce applications nationwide. They stated that ICT companies must expand their infrastructure and get ready to provide proper services to support anticipated e-commerce adoption developments in the future. Also, many participants indicated the importance of banking services, as they are considered one of the significant needs of e-commerce activities. Finally, a few participants indicated the importance of having good postal services and address systems to promote e-commerce activities nationwide.

“The role of ICT companies in supporting electronic commerce and its applications is significant. Therefore, ICT companies must expand their infrastructure and services to cover all parts of the country by providing high-speed DSL and fibre-optic services and to ensure that these services at the best levels in the world.” P6

6.2.8 Conclusion

Whereas this research aims to achieve an in-depth understanding of the current status of e-commerce in Saudi Arabia and to investigate the factors affecting its adoption nationwide, this chapter has presented a qualitative analysis of the supporting industries' perspective interviews, which were conducted with nine representatives of supporting industries that support e-commerce activities nationwide. This chapter has presented analysed data gathered by semi-structured interviews, using a deductive qualitative analysis approach and thematic analysis method.

The results indicate that supporting industries have sufficient awareness and commitment to their clients with respect to e-commerce via the media to enhance their clients' awareness. Moreover, the results have revealed that there are no conflicts between the Islamic religion and e-commerce, as the conflicts found in the past have been resolved by the Sharia boards in the banking sector. However, sometimes Saudi society prefers traditional shopping because of cultural reasons, such as viewing traditional shopping as a social activity.

Also, the results confirm the appropriateness of the legal environment of the Saudi market to enhance e-commerce applications. Also, the Saudi government supports all of the

supporting industries, and it has a good level of commitment to promoting e-commerce adoption nationwide, though government officials must follow up on these regulations and their effectiveness to check on their reliability and efficiency.

Also, the results indicate that Saudi retailers are ready to conduct e-commerce, and most participants were expecting a significant rise in the number of e-commerce websites, as it is still limited now. Moreover, the use of social media as a marketing channel is very high among Saudi individuals, as they are ready to use e-shopping and willing to do so.

Moreover, telecommunication services, the technology infrastructure of financial institutions, and the quality of banking services are reliable and capable of supporting e-commerce activities; however, most participants indicated that the Saudi postal system and services are inadequate and need further enhancement to support e-commerce activities appropriately.

Regarding governmental roles, the results have revealed that the most important role for the government is to support all of the supporting industries to enhance e-commerce adoption nationwide by providing them with more facilities and financial support. Finally, all of these results and their inferences will be discussed in the discussion chapter, where the alignment of the different perspectives considered by this research will be presented.

Chapter 7 Discussion

7.1 Introduction

The previous chapters 5 and 6 have presented the results of the perspectives of the four groups that are involved in e-commerce adoption, i.e. the consumer perspective, SMEs' perspective, governmental perspective, and supporting industries' perspective. In this chapter, these different points of view are presented to determine whether the main research hypotheses have been supported or rejected, and to determine the factors that hinder the most e-commerce adoption in Saudi Arabia. Moreover, these results will be compared and linked to the literature presented in chapter two. Figure 7.1 shows the research model, and Table 7.1 summarises the final outcome of the hypotheses' tests.

The subsections of this chapter are organised as follows: the next subsections (7.2–7.12) present the alignments of the four perspectives respectively according to the impacting factors and the main research hypotheses.

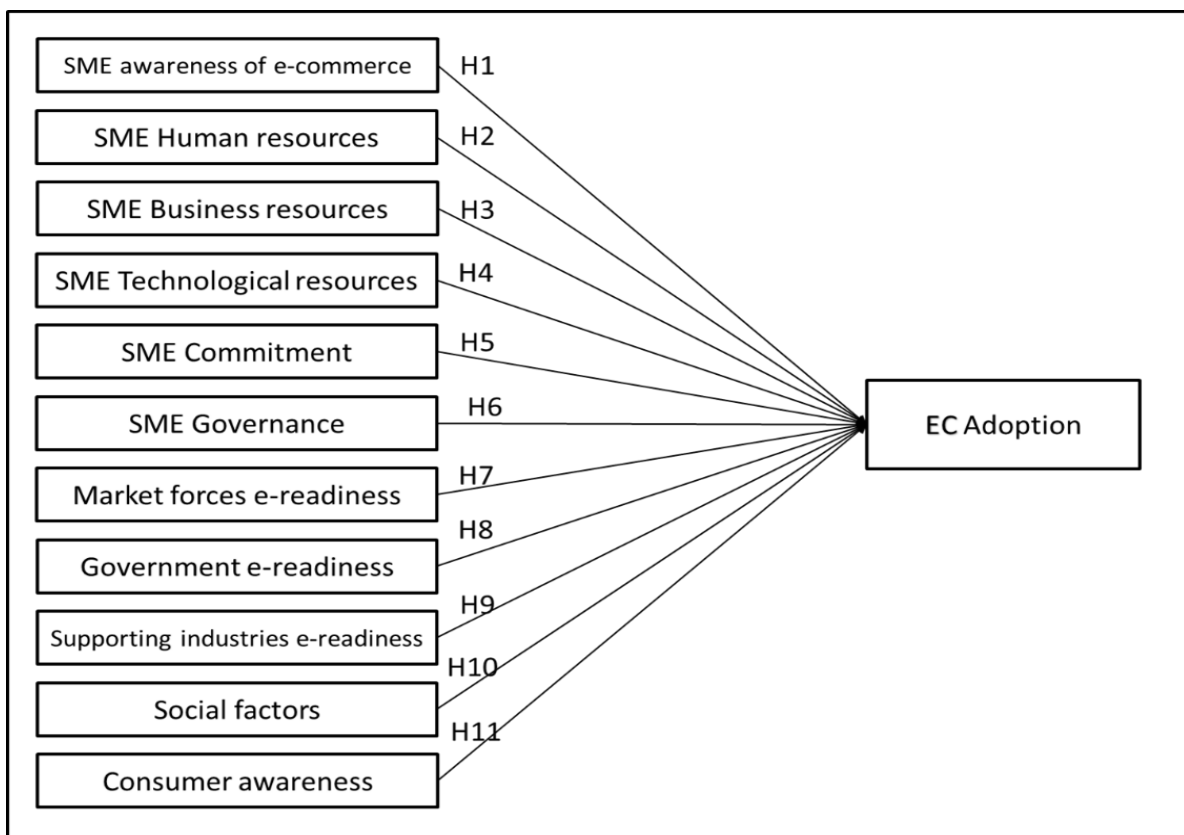


Figure 7.1 The research model

SME awareness of e-commerce	supported
SME Human resources	supported
SME Business resources	supported
SME Technological resources	supported
SME Commitment	supported
SME Governance	supported
Market forces' e-readiness	supported
Government e-readiness	supported
Supporting industries' e-readiness	supported
Social factors	supported
Consumer awareness	supported

Table 7.1. Summary table

7.2 SMEs' Awareness

From SMEs' perspective, participants do not believe that their organisations are aware of their partner organisations' e-commerce implementations, that their organisations are aware of their competitors' e-commerce and e-business implementations, that their business recognises the opportunities and threats enabled by e-commerce, that their organisations understand e-commerce business models that can be applied to their business, that they understand the potential benefits of e-commerce for their business, that their organisations have thought about whether or not e-commerce impacts on the way business is to be conducted in their industry nor, or that their organisations have considered whether businesses in their industry that fail to adopt e-commerce and e-business would be at a competitive disadvantage. These results confirm the weakness of SMEs' awareness, which has affected their decision to adopt e-commerce. These results are in line with many studies conducted in Saudi Arabia over the last fifteen years (CITC, 2018b; IBL, 2018; NARD, 2018; SADAD, 2018; SPC, 2018a). On the other hand, the governmental department's results reveal, however, that they believe that Saudi SMEs are ready to adopt e-commerce, their intention is still affected by their knowledge about e-commerce applications. Supporting industry results also confirm this weakness regarding SMEs' awareness, but at the same time they believe that the number of Saudi SME traders who are interested in the use of e-commerce and its applications is increasing very quickly in Saudi Arabia. So, they feel that SMEs' adoption of e-commerce is just a matter of time.

However, all of these parties, i.e. SMEs, government, and supporting industries, must work together to enhance SMEs' awareness nationwide to get benefits from the e-commerce advantages. Finally, these results support research hypothesis H1, which considers SMEs' awareness as a factor impacting e-commerce adoption in Saudi Arabia (Ahmad & Agrawal, 2012; Aleid, 2011; Sait et al., 2004; SPC, 2018b, 2018c).

7.3 SMEs' Human Resources

Another internal factor that seems to have an impact on e-commerce adoption by Saudi SMEs is human resources. This factor focused on the employees in terms of their e-skills, ICT availability to them, and the business capability to employ computer professionals if needed (Ahmad & Agrawal, 2012; AlGhamdi et al., 2011; Al-Hudhaif & Alkubeyyer, 2011; Basahel & Khoualdi, 2015; Sait et al., 2004). H2: Human resources have a significant and positive impact on e-commerce adoption.

7.4 SMEs' Business Resources

From the SMEs' perspective, another finding supports research hypothesis H3: Business resources have a significant and positive impact on e-commerce adoption. Most participants do not believe that their employees are open and trusting with one another, that communication is very open in their organisations, that their organisations exhibit a culture of enterprise-wide information sharing, that they have a policy that encourages grassroots e-commerce initiatives, that failure can be tolerated in their organisations, or that their organisations are capable of dealing with rapid changes (Ahmad & Agrawal, 2012; Aleid, 2011; AlGhamdi et al., 2011; Basahel & Khoualdi, 2015).

7.5 SMEs' Technological Resources

The results reveal that from SMEs' perspective, technological resources seem to be another factor that hinders e-commerce adoption among Saudi SMEs. Most participants do not believe that they have sufficient experience with network-based applications, that they have insufficient business resources to implement e-commerce, and that their organisations are lacking computerisation with LAN and WAN. Also, they do not have high bandwidth connectivity to the internet, and their existing systems are not flexible, so it is

difficult to change the way they market their products. Lastly, their existing systems are not customisable to their customers' needs. Item 7 is the only one that has a relatively high mean at 3.59, which indicates that many participants believe that they can supply sufficient technological resources if needed. This finding would support the research hypothesis H4: Technological resources have a significant and positive impact on e-commerce adoption (Aleid, 2011; Sait et al., 2004).

7.6 SMEs' Commitment

The findings reveal that from SMEs' perspective, top management commitment at Saudi SMEs is another factor that impacts e-commerce adoption (AlGhamdi et al., 2011; Al-Hudhaif & Alkubeyyer, 2011; Almoawi & Mahmood, 2011; Basahel & Khoualdi, 2015). This factor includes having a clear vision of e-commerce and it being supported by the top management. So, this would support the research hypothesis H5: Commitment has a significant and positive impact on e-commerce adoption.

7.7 SMEs' Governance

SMEs' governance was the last examined organisational factor that seems to hinder e-commerce adoption by Saudi SMEs (Aleid, 2011; Al-Hudhaif & Alkubeyyer, 2011). From the SMEs' perspective, most participants believe that the roles, responsibilities, and accountability are not clearly defined within each of their e-commerce initiatives (Al-Hudhaif & Alkubeyyer, 2011). Also, top management has not been assigned for all e-commerce initiatives, and they do not analyse the possible changes caused to their organisations, suppliers, partners, and customers as a result of each e-commerce implementation. Moreover, they do not follow a systematic process for managing change issues as a result of e-commerce implementations. So, Saudi SMEs must give more attention to their organisational governance to promote e-commerce adoption. This result would also support the research hypothesis H6: Governance has a significant and positive impact on e-commerce adoption.

7.8 SMEs' Market Forces' e-Readiness

SMEs market forces' e-readiness is an environmental factor that was investigated in this research from the four perspectives. It focused on four aspects: i.e. clients' readiness, business partners' readiness, cultural impacts, and finally the impact on consumer awareness about their decision to use e-shopping. Some arguments among the four perspectives have been founded in this regard. For example, SMEs believe that Saudis are not ready yet to use e-shopping (AlGhamdi et al., 2011; Ahmad & Agrawal, 2012; Al-Hudhaif & Alkubeyyer, 2011; Almoawi & Mahmood, 2011; Al-Somali et al., 2010, 2011), whereas the other three parties believe that Saudi consumers are ready and willing to obtain benefits from this new technology and they are already using e-shopping. Also, from a consumer perspective, participants believe that Saudi retail companies are ready to offer online stores and that many Saudi companies offer online shopping websites. The governmental department agreed with this with some reticence, as they believe that SMEs must pay more attention to increasing their knowledge about e-commerce applications, the availability of web developers, and the existence of consumer demand.

From a governmental perspective, the results reveal that Saudi retailers are ready to conduct e-commerce, but another finding shows that some participants believe that there are many e-shopping websites in Saudi Arabia. Some others think it is still limited, and they expect it to rise over time according to supply and demand. Moreover, the results reveal that the number of people who are using e-shopping in Saudi Arabia is very high, especially among the youth who are more familiar with the new technology. Finally, the research hypothesis H7: Market forces' e-readiness has a significant and positive impact on e-commerce adoption has been statistically supported.

7.9 Government e-Readiness

The results of this research reveal that, unlike most of the previous studies of e-commerce adoption in the Saudi context, this research has proved that the Saudi government is supporting e-commerce nationwide. Furthermore, it can be concluded that from a consumer perspective, supporting industries and the governmental departments all agreed that the Saudi government has effective laws to protect consumer privacy in Saudi Arabia.

There are effective laws to combat cybercrime, the legal environment is conducive to conducting business on the internet, and the government demonstrates a strong commitment to promoting e-commerce. This finding is in line with some previous studies (Aleid, 2011; Al-Hudhaif & Alkubeyyer, 2011; Al-Somali et al., 2010). Only SMEs' results reject this finding, and this may explain their obvious lack of awareness, as stated before. The governmental departments during the interview provided the researcher with good evidence to confirm the existence of effective laws to protect consumer rights and combat cybercrime and the existence of effective laws to protect consumer rights even though people (especially SMEs) distrust online shopping for many reasons, e.g. their awareness of these laws is very weak, they do not trust the shopping websites or the sellers, and they do not trust the delivery service. The most important role of the Saudi government is the legalisation, yet SMEs believe that the e-commerce legislation needs further enhancements to promote e-commerce applications nationwide. The existing ones are acceptable at this stage; however, the discriminate analysis considers this an impacting factor, which means that governmental e-readiness has a significant and positive impact on e-commerce adoption, thus supporting research hypothesis H8.

7.10 Supporting industries' E-Readiness

From SMEs' perspective, participants do not believe that the telecommunication infrastructure is reliable and sufficient to support e-commerce and e-business, that the technology infrastructure of commercial and financial institutions is capable of supporting e-commerce transactions, that there is efficient and affordable support from the local IT industry to support their move on the internet, that secure electronic transactions and/or secure electronic commerce environment services are easily available and affordable, that banking services provided by Saudi commercial banks are reliable and efficient to support e-commerce, or that the Saudi postal system is reliable and sufficient to support e-commerce and e-business.

From a consumer perspective, participants believe that the telecommunication services are reliable and efficient to promote e-shopping use, that the telecommunication services provided to individuals are very inexpensive in light of their high quality, that the technology

infrastructure of commercial and financial institutions (companies and banks) is capable of supporting e-shopping transactions, that banking services provided by Saudi commercial banks are sufficiently reliable and efficient to support e-shopping, and that the Saudi postal system and services are sufficiently reliable and efficient to support e-commerce and e-business. From a governmental perspective, the results show that telecommunication services are reliable and efficient to promote e-commerce applications; however, they do need some attention to keep up with rapid developments in the field and to make sure that the infrastructure is capable of meeting businesses' and individuals' needs. Moreover, in terms of governmental roles, most participants agreed that the most important role of the Saudi government to enhance e-commerce adoption nationwide is to solve the postal system problems. They claimed that the main limitation to e-commerce in the country is the obvious failure of the postal system. Furthermore, the results reveal that the banking services and infrastructure offered by Saudi commercial banks are reliable and sufficient to promote e-commerce applications in the country; however, some participants noted the lack of banking specialists in some cases. Finally, the discriminate analysis considers this factor as an impacting factor, which means that supporting industries' e-readiness has a significant and positive impact on e-commerce adoption, thus supporting research hypothesis H9.

7.11 Social Factors Including Culture and Religion

From an SME perspective, consumers believe that the intention of Saudi consumers to use e-commerce is affected by religious and cultural matters, and Saudi consumers' intention to use e-commerce is affected by their awareness of e-shopping too. On the other hand, consumers believe that knowing the English language is essential to use e-shopping websites. Also, they prefer physical shopping rather than purchasing their goods online. Participants do not believe that using online shopping is affected by Islamic religious rules, such as financial and credit card issues. Finally, participants trust only websites that have been recommended to them by their friends or relatives. The results have revealed that there are no conflicts between the Islamic religion and e-commerce, although Saudi society prefers traditional shopping because of cultural reasons. Moreover, the results show that although English language skills are essential, this has no impact on the consumer's

intention to use online shopping as long as alternative Arabic shopping websites are available. Although some participants indicated that the English language is necessary to use online shopping, they also noted that Arabic alternatives exist. Other participants believe that the English language is not necessary to use e-shopping websites as long as alternative Arabic shopping websites are available. Most participants agreed that Saudi society has high levels of English language skills, especially the youth and younger segments of society. They attribute this to the modern lifestyle and the new educational curriculums. As a result, governmental departments have not implemented any actions to overcome English language difficulties related to e-shopping use. Moreover, the results reveal that directly and indirectly, the intention of Saudi society to use e-shopping is affected by cultural aspects. Some participants referred to the traditional shopping being one of the very limited social activities available in Saudi Arabia, so they prefer physical inspection and price bargaining. Also, some participants believe that the preference for physical shopping or e-shopping depends on personal preference. Moreover, the results reveal that Saudi females are using e-shopping more than Saudi males and that Saudi youth prefer online shopping more than older people because they are more familiar with new technologies.

Almost all of the participants believe that there are no conflicts between Islamic regulations and e-commerce. The result shows that most Saudi consumers prefer traditional and physical shopping as a social habit. This, in turn, supports the following finding that the intention of Saudi consumers to use e-shopping is affected by cultural aspects. Some other participants claimed that there is an inverse relationship between the preference for traditional shopping and the culture of e-shopping usage, i.e. the more knowledge about the culture of e-shopping, the less the use of traditional shopping. Another finding indicated that youths prefer online shopping more than other age segments. Also, due to the conservative Saudi society, Saudi females are using e-shopping more than Saudi males, as it offers them an easy way to browse, compare prices, and follow high fashion. Moreover, some participants believe that the acceptance of e-shopping by Saudi society is simply a matter of time and is not affected by cultural aspects. As time passes, people will learn more about the advantages they could obtain by using such technology, which

does not contradict our traditions or culture in any way. Also, discriminate analysis has supported research hypothesis H10: Social factors, including culture, language, and religion, have a significant and positive impact on e-commerce adoption.

7.12 Consumer Readiness

From a consumer perspective, it can be seen that most of the participants believe that e-shopping makes life easier. Also, many participants believe that they have a good knowledge of e-shopping advantages and threats and believe that they have good e-skills to shop online. This means that these participants are qualified for using e-shopping and believe that e-shopping helps them in their daily lives. However, the Saudi consumer believes that the media and educational curriculums do not promote good knowledge and awareness in terms of new technologies, such as e-skills and e-shopping. On the other hand, there were better results regarding trust and information security precautions that can protect against internet fraud and deception. Finally, the results show a relatively high indication that the participants read the terms and conditions of sale, which supports the previous belief that they have a good knowledge of e-commerce threats. SMEs' perspective disagrees with this, as SMEs do not believe that their customers are ready to do business on the internet; however, their intention to use e-commerce is not affected by religious and cultural matters, nor is the Saudi consumers' intention to use e-commerce affected by their awareness of e-shopping. Again, this disagreement confirms the weakness of SMEs' awareness too. Governmental departments claim that Saudi consumers have insufficient e-commerce awareness for several reasons, such as the higher rate of internet fraud, e-commerce newness to Saudi society, and consumer lifestyle. For example, one of the participants said:

"If you have a look at the reports of the large amounts of electronic fraud in Saudi Arabia, you'll know that a lot of Saudis do not have enough awareness about this modern technology as they are not able to identify whether a shopping website is reliable or not."
(P6)

So, in this case, the participant considered the amount of reported internet fraud as an indication of the weakness of consumer awareness. Another participant felt that weakness was due to the newness of this technology in Saudi society, when he said:

"I do not think that Saudi consumers are aware of e-commerce advantages and threats because of their newness to Saudi society, which will require some time for people to get the necessary awareness about the benefits and risks of this technology." (P5)

Also, another participant confirmed that weakness when he said:

"Consumer awareness is weak. They are not aware of the modern lifestyle, i.e. internet usage, email usage, nor ATMs, as for some groups of people." (P4)

On the other hand, surprisingly, most participants agreed that internet usage in Saudi Arabia is relatively high, as identified by one of the participants:

"Our statistics indicate that the Saudis are the highest in the use of YouTube, Twitter, and Facebook. Also, we are at a higher ranking in the global statistics of internet usage." (P1)

Moreover, the participants indicated that although Saudi consumers have limited awareness about e-shopping threats, they are still seeking its advantages, even with the limited availability of e-shopping websites. Hence, they use different channels to buy and sell online, e.g. social media, internet forums, and mobile apps. This reveals, from the Saudi governmental perspective, that Saudi consumers have a high tendency to use e-shopping. For example, one of the interviewees said:

"Total e-sales in Saudi Arabia amounted to nearly four billion dollars, including 800 million dollars in retail sales and the rest in other sectors, such as banking and travel. Also, 31% of Saudis trust online purchases. This is the highest percentage in the region, and this is sufficient evidence of the readiness of the Saudi consumer to enter the electronic markets strongly. Also, because of the lack of available e-shopping websites, Saudis started years ago to invent new ways to buy and sell over the internet, such as the use of social networks and mobile apps and online forums, which is the first way in which the Saudis used to buy and sell online a long time ago." (P4)

Furthermore, some participants underlined that consumer awareness of e-commerce threats is very low, which explains the high rates of cybercrime. One participant said:

"I don't think that Saudi consumers have sufficient e-commerce awareness, especially about its threats and disadvantages. The existing users are mostly not familiar with the conception of e-shopping terms and conditions, and nobody even reads them." P5

However, other participants indicated that Saudi consumers are aware of e-commerce advantages and benefits:

"I believe that people are completely aware of e-shopping advantages, i.e. time savings, cost savings, making it easy to compare between the offers, and the most important thing is that it allows cross-border shopping." (P2)

Participants also mentioned various awareness activities to confirm their commitment to promote consumers' awareness about e-commerce advantages and threats to enhance their usage. One of the participants said:

"We pay more attention to activating the role of corporate social responsibility programmes, particularly in the field of information security awareness." (P1)

Other participants indicated several other activities, e.g. awareness workshops, awareness competitions, awareness campaigns, and the press. The results also reveal that Saudi consumers, especially the youth and younger people, are highly skilled regarding their ability to use computers, mobile devices, and the internet to shop online. Also, participants mentioned several signs that indicate this, e.g. high internet usage, high annual spending on e-shopping, and the high quality of new educational curriculums. This confirms that Saudi consumers are ready to use e-shopping.

Most participants stated that they are promoting the media's role in many ways. Also, some participants confirmed that the government must promote the media's role (TV, radio, online awareness, and newspapers) to provide useful e-commerce enlightenment to Saudi society. The government has many plans to promote consumer awareness, such as activating media roles, awareness workshops, awareness competitions, and campaigns.

The results reveal that internet usage in Saudi Arabia is very high, and interesting findings indicated that Saudi consumers are ready to conduct e-shopping and there are already many people using this new way of shopping.

From supporting industries' perspective, awareness commitment is sufficient. Also, the participants stated that they promote through the media all means to enhance client's awareness nationwide. Also, participants stated that they have a good commitment to their clients to enhance their knowledge about e-commerce applications and services offered. For example, P1 said:

"Certainly, we are keen to make sure that our clients are aware of all services we offer, and this is a very important part of our marketing policy. We use all the marketing channels available, e.g. television, radio, street ads, and publications. We also use the internet as a modern channel to market our services."

Moreover, most participants confirmed that their organisations are using the available advertisement channels to inform their clients about the services offered and to promote clients' awareness about e-shopping advantages and threats. For example,

"We live in an advertisement era whereby it is the fastest way to reach our clients. So yes, we use all advertising channels possible because the competition in this regard is great between us and other operators." P8

Finally, the discriminate analysis considers this factor as an impacting factor, which means consumer awareness of e-commerce has a significant and positive impact on e-commerce adoption (H1).

Chapter 8 Conclusion

8.1 Overview

This subsection presents an overview of the research. The principal aim of this research was to identify the factors that impacting e-commerce adoption by SMEs in Saudi Arabia, especially those using business to consumer (B2C) type business. So, in order to achieve this aim, this research has accomplished six major objectives: First, to identify the current status of e-commerce adoption in Saudi Arabia. Second, to identify the importance of e-commerce solutions among SMEs in Saudi Arabia through multiple perspective investigation. Third, to understand the diffusion of innovation and technology in terms of e-commerce and how it has influenced the Saudi SMEs. Fourth, to develop and adopt a new theoretical model by reviewing, aligning, and extending the preserved e-readiness model (PERM) to match the case of Saudi Arabia and to cover four different groups of people involved in e-commerce adoption (SMEs, Saudi consumers, supporting industries, and involved governmental departments). Fifth, to reveal the obstacles that hinder the progress of e-commerce adoption in Saudi Arabia. Finally, to provide Saudi SMEs, supporting industries and the government with practical recommendations to enhance e-commerce adoption in Saudi Arabia. So, to accomplish these research objectives, this thesis is divided into eight chapters as follows:

Chapter 1: Introduction

This chapter includes the background, research context, the Kingdom of Saudi Arabia, the importance and contribution of the proposed research, a statement of aim and objectives, and the thesis organisation.

Chapter 2: Literature Review

Literature Review: This chapter includes a definition of SMEs, e-commerce and e-business, the history of e-commerce, the theoretical frameworks, theoretical background, the diffusion of innovations (DoI), technology acceptance model (TAM), technology-organisation-environment (TOE), the perceived e-readiness model (PERM), the appropriateness of PERM to the proposed study, an exploratory study of delivery issues, e-banking, education, culture and religion issues, factors affecting e-commerce adoption in Saudi Arabia, SME awareness, human resources, business resources, technological resources, commitment, governance, market forces' e-readiness, government e-readiness, supporting industries' e-readiness, e-commerce adoption,

social factors including culture and religion, consumer awareness, and gaps in the research literature.

Even though e-commerce has greatly influenced the business sector across the world, it still lacks detailed information about goods and services, price comparisons, and fast deliveries through the easy adoption of different business activities. Gaps are also observed with respect to the considerable obstacles experienced by consumers and the business sector, which aspires to e-commerce reaching consumers in its full potential even though e-commerce between companies representing B2B marketing influences how these companies value transactions between organisations. Several extensive barriers are faced by organisations, especially in the Saudi Arabian economy. This lack of application of PERM is viewed as a significant stimulus for the researcher to extend PERM to the case of the B2C business of SMEs in Saudi Arabia.

Chapter 3: Research Hypotheses and Model Construction

The research hypotheses and model construction. From the results of the exploratory study, the literature review, and the PERM theoretical model, a clear picture of the research hypotheses and proposed research model was identified and presented.

Chapter 4: Research Methodology

Research Methodology: this chapter includes an introduction, research philosophy, research design, research approach, the research populations and sampling methods, the SME stakeholder sample, along with a sample of Saudi customers, governmental departments and supporting industries, the data collection, interview method, questionnaire method, and the data analysis of interviews and questionnaires. Finally, the data analysis used in the research, research ethics, limitations, and a conclusion is included in this chapter.

Chapter 5: data analysis using surveys.

This chapter includes the following:

data analysis using surveys based on SME perspective, includes an introduction, model construction and hypotheses of SME perspective, data collection and screening, representative sample, adequate sample size, descriptive data analysis, a demographic profile, descriptive data of independent variables, quality of data gathered using Cronbach's alpha, a preliminary analysis, ANOVA, log determinants and Box's M test and discriminant analysis. In summary, the results

suggest that all nine hypotheses of SMEs' perspectives have been supported, and the relationships between all constructs and the adoption level have been statistically explained.

Data analysis using surveys based on of consumer perspective, includes an introduction, model construction and hypotheses of consumer perspective, data collection and screening, a representative sample, adequate sample size, descriptive data analysis, demographic profile, descriptive data of independent variables, quality of data gathered using Cronbach's alpha, a preliminary analysis, ANOVA, log determinants and Box's M test, and discriminant analysis.

In summary, the results suggest that all five hypotheses of consumers' perspectives have been supported, and the relationships between the five constructs and the usage level of e-shopping have been statistically explained. Moreover, consumer awareness ($r = .825$) was the most important factor affecting the Saudi consumers' use of e-shopping. This was followed by government e-readiness ($r = .942$), social factors ($r = .719$), supporting industries' e-readiness ($r = .673$), and retailers' e-readiness ($r = .667$).

Chapter 6: data analysis using interviews.

This chapter includes the following:

data analysis using interviews based on government perspective, includes an introduction, model construction and hypotheses, analysis strategy and coding, theme one to five including related twenty-three subcodes. The results indicate that from a governmental point of view, consumer awareness is insufficient; however, Saudi consumers have good e-skills. A downside identified by the results is that existing educational curriculums are insufficient to promote students' e-skills. Furthermore, the government has many plans to promote consumer awareness, i.e., activating media roles, awareness workshops, awareness competitions, and campaigns.

Regarding the impact of social concerns and religion, the results reveal that there are no conflicts between the Islamic religion and e-commerce, although Saudi society prefers traditional shopping due to cultural reasons.

Also, the results confirm the existence of effective laws to protect consumer rights and combat cybercrime. Saudi Arabia has effective laws to protect consumer rights. However, the government must consider its role in enhancing e-commerce adoption nationwide, e.g. paying more attention to improving the postal address system, curriculum enhancement, e-commerce legislation, ICT infrastructure, professional development training programmes, and promoting the media's role.

In terms of market forces' e-readiness, Saudi retailers are ready to conduct e-commerce, but their intention is affected by many considerations, such as e-commerce awareness, the availability of web developers, and the existence of consumer demand. On the other hand, e-shopping websites in Saudi Arabia are still limited, but the number of people who are use e-shopping in Saudi Arabia is very high, especially among the youth.

Finally, regarding supporting industries in Saudi Arabia, telecommunication services are reliable and sufficient to promote e-commerce applications at this time. Moreover, in terms of governmental roles, the most important role of the Saudi government in enhancing e-commerce adoption nationwide is to solve the postal system problems, as they seem to be the main hindrance to e-commerce adoption in the country. Furthermore, the results reveal that banking services and infrastructure offered by Saudi commercial banks are reliable and sufficient to promote e-commerce applications.

data analysis using interviews based on supporting industries' perspective, includes an introduction, model construction and research hypotheses, data analysis strategy and coding and theme one to five including related sixteen subcodes. The results indicate that supporting industries have sufficient awareness and commitment to their clients with respect to e-commerce via the media to enhance their clients' awareness. Moreover, the results have revealed that there are no conflicts between the Islamic religion and e-commerce, as the conflicts found in the past have been resolved by the Sharia boards in the banking sector. However, sometimes Saudi society prefers traditional shopping because of cultural reasons.

Also, the results confirm the appropriateness of the legal environment of the Saudi market to enhance e-commerce applications. Also, the Saudi government supports all of the supporting industries, and it has a good level of commitment to promoting e-commerce adoption nationwide, though government officials must follow up on these regulations and their effectiveness to check on their reliability and efficiency.

Also, the results indicate that Saudi retailers are ready to conduct e-commerce, and most participants were expecting a significant rise in the number of e-commerce websites, as it is still limited now. Moreover, telecommunication services, the technology infrastructure of financial institutions, and the quality of banking services are reliable and capable of supporting e-commerce activities; however, most participants indicated that the Saudi postal system and services are inadequate and need further enhancement to support e-commerce activities appropriately.

Regarding governmental roles, the results have revealed that the most important role for the government is to support all of the supporting industries to enhance e-commerce adoption nationwide by providing them with more facilities and financial support.

Chapter 7: Discussion

This chapter presents the alignments of the four perspectives respectively according to the impacting factors and the main research hypotheses. It consists of a discussion, introduction, research model construction and hypotheses, SMEs' awareness, SMEs' human resources, SMEs' business resources, SMEs' technological resources, SMEs' commitment, SMEs' governance, SMEs market forces e-readiness, government e-readiness, supporting industries' e-readiness, e-commerce adoption level, social factors including culture and religion, and consumer readiness.

Chapter 8: Conclusion

This chapter offers the research overview, research contribution, limitations, recommendations for future research, and a conclusion.

8.2 Research Contribution

This research will contribute to the adoption of e-commerce tools by the SMEs in Saudi Arabia. The economy has been opening up to new possibilities while attracting more consumers and investors at the foreign level. The research provides such investors and consumers with insight into the current SMEs and economic feasibility. Also, this research is important in that it provides a comprehensive image of e-commerce status for the government to develop a better understanding of the reasons that may reduce the use of e-commerce in the country and discourage companies from implementing e-commerce systems. The originality of the research lies in the country of origin, the corporate sector of SMEs under consideration, and the e-commerce aspects which have been discussed as per the hypotheses. The research outlines various factors that can affect overall e-commerce adoption. It will help SMEs as well as researchers to further develop their research from the findings by suggesting effective methods for lowering the resistance to e-commerce adoption in SMEs as well as in large corporations. The economic, political, and social scenarios of Saudi Arabia will have to be considered while doing the research.

The importance of this research arises from many aspects that affect the adoption and development of e-commerce in Saudi Arabia. First, the high number of SME businesses in Saudi Arabia should benefit from such technology to minimise their marketing expenses, maximise their incomes, and move towards global markets through the adoption of such technology. Second, businesses need to understand the current e-commerce status to develop suitable business strategies in the future to ensure success in using such technology. Next, there is the demand from the Saudi people to benefit from such technology (Aleid et al., 2010; Almoawi & Mahmood, 2011; Al-Somali et al., 2010, 2011; Kurdi, 2008).

The theoretical implications of this study stem from several aspects. First is the significance of having a valid theoretical framework for e-commerce adoption examination in the context of developing countries. Secondly, this study supports the use of interactionism theory to examine SMEs' readiness for e-commerce applications in developing countries. Also, this study provides policymakers and Saudi SMEs with a valid checklist of nine factors that are most likely to have impacts on e-commerce adoption. In other words, to promote e-commerce adoption by Saudi SMEs, the government and stakeholders can use the provided checklist of critical success factors for e-commerce adoption by Saudi SMEs.

This research will play a significant role in introducing the Saudi business sector to the global business industry. E-commerce will also be influenced by and information and communication technology to be identified on a larger scale among other tech-savvy nations across the world. It is not surprising that the Saudi business sector is also focusing on its development and adding value to the lifestyle of the people. This research will help in supporting the adoption of e-commerce and also in expanding sustainable trends in the business industry. Moreover, different signs have been identified in the upsurge of online purchases. This research highlights how barriers can be removed with the adoption of e-commerce and access to different products or services, which were initially considered to be out of reach. Moreover, the business sector will also be influenced by expanding into the international market and also in generating a better understanding of e-commerce and how it can help simplify the lives of people across the world.

8.3 Limitations and Recommendations for Further Research

Limitations of this study need to be noted; that is, the sample size is small, particularly, of Saudi SMEs, and hence caution needs to be taken when interpreting the results. Also, different types of business models, such as B2B, C2C, and C2B, could be useful for future work to promote an understanding of this phenomenon. Finally, the model developed in this study can be useful for further research in neighbouring countries in the region, e.g. the Arabian Gulf, the Middle East, and developing countries, as they mostly share similar characteristics in terms of their business and cultural environments.

Besides that, the identification of the questionnaire and respondents' attitude was professed to be another difficulty in the convenience sampling approach. Moreover, another limitation is the extent of data that was available in Chevron related to the CSR activities of the firm. In this regard, it is significant to note that with respect to sufficient data and information which are publicly available from the industrial reports of Saudi Arabia, actual access to the information and data was not provided by the industrial units of Saudi Arabia; instead, it was merely based on the perceptions of the people.

Some of the limitations of this model include:

- Increased time consumption
- Complicated verification of results
- Labour-intensive approach
- Causality that is difficult to assess
- Statistical representation of results

There were also several limitations observed as a result of the approach followed within the study. Some of the most significant limitations included increased time consumption, compromised decisions in certain cases, subjective and biased decisions, limited analysis of the subject, conducting of the report in an uncontrollable environment, and uncertain responsibilities. While conducting this report, some of these issues were inherited in the process of decision making as was the rigidity observed in certain techniques of decision making.

8.4 Conclusion

It can be concluded that all the hypotheses of the research were proven, which is a positive outcome for the research in the long run. The importance of this research is dependent on many aspects which will have a positive impact on the adoption and development of e-commerce in Saudi Arabia. The research provides a stable resource to allow the high number of SME businesses in Saudi Arabia to be inspired. Due to the increase in SMEs and e-commerce adoption, businesses can benefit from such technology to minimise their marketing expenses, maximise their incomes, and move towards global markets through the adoption of such technology. It can be concluded that the businesses must create more awareness about current e-commerce status to develop suitable business strategies in the future to ensure success in using such technology.

Based on social factors, it can be concluded that most Saudi consumers prefer traditional and physical shopping as a social habit. The intention of Saudi consumers to use e-shopping is affected by cultural aspects. There is an inverse relationship between the preference for traditional shopping and the culture of e-shopping usage, i.e. the more knowledge about the culture of e-shopping usage, the less use of traditional shopping. Another finding indicated that youths prefer online shopping more than other age segments, which supports the related hypothesis.

Internet usage in Saudi Arabia is very high, which is a positive outlook for the Saudi consumers who are ready to conduct e-shopping as there are already many people using this new way of shopping. Consumer readiness has been positively indicated via high internet usage, high annual spending on e-shopping, and the high quality of new educational curriculums. This confirms that Saudi consumers are ready to use e-shopping.

It can be concluded that Saudi industry is ready to adopt e-commerce to a great degree. With proper awareness among the corporate world and consumers, resistance and the barriers to adoption could be better addressed.

Chapter 9 Appendices

Appendix 1: Ethical Review

FORM UPR16

Research Ethics Review Checklist



Please include this completed form as an appendix to your thesis (see the Research Degrees Operational Handbook for more information)

Postgraduate Research Student (PGRS) Information		Student ID:	476580
PGRS Name:	Maher Alhindi		
Department:	OSM	First Supervisor:	Prof. Alessio Ishizaka
Start Date: (or progression date for Prof Doc students)	Oct 2011		
Study Mode and Route:	Part-time <input type="checkbox"/> Full-time <input checked="" type="checkbox"/>	MPhil <input type="checkbox"/> PhD <input checked="" type="checkbox"/>	MD <input type="checkbox"/> Professional Doctorate <input type="checkbox"/>
Title of Thesis:	E-commerce Adoption by Small and Medium Enterprises - a multiple Perspective Investigation in Saudi Arabia		
Thesis Word Count: (excluding ancillary data)	62,984		
<p>If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study</p> <p>Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).</p>			
UKRIO Finished Research Checklist: (If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrio.org/what-we-do/code-of-practice-for-research/)			
a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	
b) Have all contributions to knowledge been acknowledged?	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	
e) Does your research comply with all legal, ethical, and contractual requirements?	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	
Candidate Statement:			
I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)			
Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):		E296	
If you have <i>not</i> submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain below why this is so:			
Signed (PGRS):			Date: 02/01/2019

UPR16 – April 2018

Ethical Review Checklist – Staff and Doctoral Students

This checklist should be completed by the researcher (PhD students to have DoS check) and sent to Sharman Rogers who will coordinate Ethics Committee scrutiny.

No primary data collection can be undertaken before the supervisor and/or Ethics Committee has given approval.

If, following review of this checklist, amendments to the proposals are agreed to be necessary, the researcher must provide Sharman with an amended version for scrutiny.

1. What are the objectives of the research project?

This research aims to identify the critical success factors of e-commerce adoption by small and medium enterprises in Saudi Arabia

2. Does the research involve *NHS patients, resources or staff*? YES ☒ NO (please circle).

If YES, it is likely that full ethical review must be obtained from the NHS process before the research can start.

3. Does the research involve *MoD staff*? YES ☒ NO (please circle).

If YES, then ethical review may need to be undertaken by MoD REC. Please discuss your proposal with your Director of Studies and/or PBS Ethics Committee representative and, if necessary, include a copy of your MoD REC application for quality review.

4. Do you intend to collect *primary data* from human subjects or data that are identifiable with individuals? (This includes, for example, questionnaires and interviews.) ☒ YES/ NO (please circle)

If you do not intend to collect such primary data then please go to question 15.

If you do intend to collect such primary data then please respond to ALL the questions 5 through 14. If you feel a question does not apply then please respond with n/a (for not applicable).

5. How will the primary data contribute to the objectives of the dissertation / research project?

In order to identify the factors that affect the adoption and development of e-commerce in Saudi Arabia by small and medium enterprises especially those are using B2C business type, the researcher has decided to conduct interviews survey and questionnaire to collect primary data to identify these factors.

6. What is/are the *survey population(s)*?

1. SME's Stakeholders.
2. Saudi individuals
3. Concerned governmental departments
4. Supporting industries

7. How big is the *sample* for each of the survey populations and how was this sample arrived at?

- **SME's Stakeholders Sample**

According to the Saudi Ministry of Commerce and Industry, the total number of SMEs in Saudi Arabia is more than 7000 and only 3200 of them deal with individual consumers (B2C). Therefore, the stakeholder sample frame will be the non-patterned list of 3200 SMEs (B2C) obtained from the Ministry of Commerce and Industry. Thus, the actual number of required responses is 346 with a confidence level of 95% and confidence interval of 4.98% (calculations have been made by using online sample size calculator at surveysystem.com). Consideration of non-responses is determined as well. According to Al-Somali et al. (2010), the response percentage of using mailed and emailed questionnaires for a similar population in Saudi Arabia is 32.7%. This means the number of questionnaires to be sent is:

$N = 346 / 32.7\% = 1058$ questioners to be sent by post and emails

- **Sample of Saudi individuals**

The Saudi individuals sample frame will cover the various segments of Saudi society to be comprehensive and reliable. It is clear that this population is very large, so according to CRS (2012) in such case, the actual sample size of 600 with a confidence level of 95% and confidence interval of 4% (calculations have been made by using online sample size calculator at surveysystem.com). Also, Hamilton (2009) suggested a response rate of 41%, the total number of questionnaires that will be sent is; $600/41\% = 1463$ questionnaires to be sent by post and Email.

- **Sample of Governmental Departments**

The governmental departments sample frame will include the Communications and Information Technology Commission, Ministry of Communication and Information Technology and the Ministry of Commerce. Obviously, the population of governmental departments is limited to one participant from each department (three participants in total), so the researcher will cover all of them by conducting interviews with involved decision makers in these organisations.

- **Samples of Supporting Industries**

The population of supporting industries represented in involved decision makers of ICT services providers and Saudi banks. Mainly, there are three ICT services providers and eleven commercial banks. Also, Saudi post is the official post service provider in Saudi Arabia. So, the researcher will cover all of them by conducting interviews with involved decision makers in these organisations which means a number of 15 interviews in total will be conducted.

8. How will respondents be *selected and recruited*?

In order to arrange interviews, the researcher will contact each organisation through phone, emails and in person visits. Please, see the previous answer

In terms of Saudi individuals, the respondents will be selected by using simple random sampling from tow sample frames: 1) the consumer emails list obtained from the chamber of commerce in Jeddah city for emailed questioners and; 2) from household address list of Jeddah city for mailed questioners.

9. What steps are proposed to ensure that the requirements of *informed consent* will be met for those taking part in the research? If an Information Sheet for participants is to be used, please attach it to this form. If not, please explain how you will be able to demonstrate that informed consent has been gained from participants.

I. Interviews:

- participants will be provided with brief overview about main research.
- participation will be completely voluntary
- participants will be informed prior to use any voice recording device if needed
- The participants will be assured of their own confidentiality.
- The participants has the right not to answer a particular question or to terminate the participation altogether.

Please find attached participation consent sheet witch will be used to demonstrate that informed consent has been gained from participants.

II. Questioners:

Electronic copies of emailed questioners and received hard copies of mailed questioners will be kept safely to demonstrate that informed consent has been gained from participants. Please find questioner cover sheet for more details.

10. How will *data* be *collected* from each of the sample groups?

1. Business owners and decision makers: questionnaires
2. Saudi individuals: questionnaires
3. Supporting industries of E-commerce: interviews
4. Concerned governmental departments: interviews

11. How will *data* be *stored* and what will happen to the data at the end of the research?

- The researcher will take the responsibility to store all collected data securely. Interviews written notes will be stored in folder and voice records will be stored in electronic forms (CDs, HDD and secured online storage)
- Questionnaires data will be stored in electronic form (CDs, HDD and secure online storage) for emailed questionnaires and printed copies in folder for mailed responses

- Collected data will be used anonymously and for this academic research only and will be destroyed at the end of the research.

12. What measures will be taken to prevent unauthorised persons gaining access to the data, and especially to data that may be attributed to identifiable individuals?

The researcher will store the printed data securely in his responsibility at his insured private flat where he lives with his own family. And the electronic copies will be stored on his personal secured laptop provided by the university which has powerful security system controlled by the university. Also, backup CDs will be used and will be stored at the researcher home too. Finally, online backup will be used for electronic data using the researcher's verified and secured Dropbox.com account.

13. What steps are proposed to safeguard the *anonymity* of the respondents?

- There is no any personal information to be asked nor recorded in the interview

14. Are there any *risks* (physical or other, including reputational) *to respondents* that may result from taking part in this research? YES / NO (please circle).

If YES, please specify and state what measures are proposed to deal with these risks.

There are no any risks to respondents that may result from taking part in this research at all.

15. Are there any *risks* (physical or other, including reputational) *to the researcher or to the University* that may result from conducting this research? YES / NO (please circle).

If YES, please specify and state what measures are proposed to manage these risks.¹

there are no risks (physical or other, including reputational) to the researcher or to the University that may result from conducting this research

The researcher will talk to respondents as representatives of organisations

16. Will any *data* be *obtained from a company or other organisation*. YES / NO (please circle)
For example, information provided by an employer or its employees.

If NO, then please go to question 19.

17. What steps are proposed to ensure that the requirements of *informed consent* will be met for that organisation? How will *confidentiality* be assured for the organisation, such that unauthorised persons will be prevented from accessing the data?

There is no any personal nor confidentiality information to be asked at all.

¹ Risk evaluation should take account of the broad liberty of expression provided by the principle of academic freedom. The university's conduct with respect to academic freedom is set out in section 9.2 of the Articles of Government and its commitment to academic freedom is in section 1.2 of the Strategic Plan 2004-2008.

PBS ETHICS APPROVAL V4: 2014

18. Does the organisation have its own ethics procedure relating to the research you intend to carry out? YES / **NO** (please circle).

If YES, the University will require written evidence from the organisation that they have approved the research.

19. Will the proposed research involve any of the following (please put a ✓ next to 'yes' or 'no'; consult your supervisor if you are unsure):

- | | | | | |
|---|-----|--------------------------|----|-------------------------------------|
| • Vulnerable groups (e.g. children) ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Particularly sensitive topics ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Access to respondents via 'gatekeepers' ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Use of deception ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Access to confidential personal data ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Psychological stress, anxiety etc ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |
| • Intrusive interventions ? | YES | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> |

If answers to any of the above are "YES", how will the associated risks be minimised?


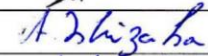
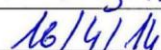
20. Are there any other ethical issues that may arise from the proposed research?

No

PBS ETHICS APPROVAL V4: 2014

Details of applicant

The member of staff undertaking the research should sign and date the application, and submit it directly to the Ethics Committee. However, where the researcher is a supervised PhD candidate, the signature of the Director of Studies is also required prior to this form being submitted.

	Name	Signature
Researcher	Maher Alhindi	
Director of Studies	Alessio Ishizaka	
Date	14/04/14	

Approval by Ethics Committee

I/We grant Ethical Approval

FREC

Date

AMENDMENTS

If you need to make changes please ensure you have permission before the primary data collection. If there are major changes, fill in a new form if that will make it easier for everyone. If there are minor changes then fill in the amendments (next page) and get them signed before the primary data collection begins.

PBS ETHICS APPROVAL V4: 2014

CHANGES TO ETHICS PERMISSION

VERSION: ____

Please describe the nature of the change and impact on ethics:

Please print the name of:

I/We grant Ethical Approval

Researcher	____	FREC	____
Signed:	____	(Signed)	____

Date	____	Date	____
------	------	------	------

(please cut and paste the next section, together with the heading at the top of this page, as many times as required)

VERSION: ____

Please describe the nature of the change and impact on ethics:

Appendix 2: Interview participation request

Dear participant:

My name is Maher Alhindi. I have a scholarship from the Ministry of Higher Education of Saudi Arabia to obtain my PhD from the Department of Business Strategy and Systems at the University of Portsmouth, United Kingdom. My PhD research is entitled “Critical Success Factors of B2C E-business Adoption by SMEs in Saudi Arabia: A Multiple-Perspective Study”. The main aim of this research is to achieve a better understanding of the status of e-commerce adoption in Saudi Arabia to help the Saudi government and business decision makers to design appropriate strategic plans to enhance e-commerce adoption and development in Saudi Arabia. To identify the factors that affect the adoption of e-commerce in Saudi Arabia by small and medium enterprises, especially those using a B2C business type, I am conducting this interview survey to collect data that reflects indications to identify these factors. Also, I would like to inform you that your participation is voluntary, and you are free to withdraw from the interview at any point. Also, you will encounter no personal risk from participating in this study. The information you provide will be anonymous and will be kept strictly confidential. If you have any questions about the study, please do not hesitate to contact me either by email or phone (see contact details below).

AUTHORISATION

Please read the following carefully before signing the authorisation.

- I have read the information presented in the cover letter about the research project being undertaken by Mr. Maher Alhindi from the Department of Strategy and Business Systems, University of Portsmouth.
- I have had the opportunity to have my questions related to this study answered, and I know that should I have any comments or concerns resulting from my participation in this research, I may contact the researcher or his supervisor.

- I was informed that I could withdraw my consent at any time during the interview by advising the researcher and that in completing this document I agree, of my own free will, to participate in this research.
- I was informed that the interviewer will use a voice recording device to record the interview (If you don't agree with this point for any reason, then please tick I DON'T AGREE below)

☐ I DON'T AGREE to the use of Voice Recording ()

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

Mr. Maher Alhindi

PhD Student

PBS, Strategy and Business Systems

University of Portsmouth

Tel: +44(0) 7827393035

Email: maher.alhindi@port.ac.uk

Appendix 3: Consumers' Survey

Consumers' Survey



I. معلومات عامة

1. الوظيفة :

(أ) عاطل عن العمل

(ب) طالب

(ج) موظف في القطاع العام

(د) موظف قطاع خاص

(هـ) رجل الأعمال \ سيدة أعمال

(و) متقاعد

(ز) ربة منزل

2. العمر :

(أ) تحت 21 سنة

(ب) 21-30 سنة

(ج) 31-40 سنة

(د) 41 - 50 سنة

8 . في أي منطقة من المملكة العربية السعودية تسكن؟

أ) الرياض

ب) مكة المكرمة

ج) المدينة المنورة

د) الشرقية

هـ) عسير

و) الباحة

ز) تبوك

ح) القصيم

ط) حائل

ي) الجوف

ك) الحدود الشمالية

ل) جيزان

م) نجران

9 . الدخل الشهري \ ميزانيتك الشهرية (اختياري)

أقل من 2٠000 ريال سعودي شهريا

2٠001 ريال إلى 4٠000 ريال شهريا

4٠001 ريال إلى 8٠000 ريال شهريا

8٠001 ريال إلى 15٠000 ريال سعودي شهريا

15٠001 ريال إلى 25٠000 ريال سعودي شهريا

25٠001 ريال إلى 50٠000 ريال سعودي شهريا

أكثر من 50,000 ريال سعودي شهريا

10 . كيف يمكنك أن تصف المامك باللغة الإنجليزية؟

ممتاز

جيد جدا

جيد

ضعيف

أنا لا أعرف اللغة الإنجليزية على الإطلاق

II . أسئلة عامة حول استخدام الإنترنت

1 . هل تستخدم الإنترنت؟

(أ) نعم

(ب) لا

2 . متى بدأت باستخدام الانترنت؟

أقل من عامين

سنتين إلى خمس سنوات

خمس إلى عشر سنوات

أكثر من عشر سنوات

III. كيف تتصل بشبكة الإنترنت؟ (يرجى وضع علامة على كل الأنواع التي تستخدمها)

من جهاز الكمبيوتر الشخصي بالمنزل

من أي باد أو الكمبيوتر اللوحي في أي مكان

من الهاتف المحمول أثناء التنقل

من جهاز الكمبيوتر في مكان العمل

من مقاهي الإنترنت

من كمبيوتر المدرسة / الجامعة / المكتبة

طرق أخرى (أرى ذكرها بالأسفل)

IV. كيف تصف استخدامك للإنترنت ؟

دائماً في معظم الأوقات

في بعض الأحيان

نادراً

V. ----- كيف تصف مهارتك في استخدام الإنترنت

ممتاز

جيد جداً

مقبول

ضعيف

VI. ----- لماذا تستخدم الإنترنت؟ (يرجى وضع علامة لكل الأغراض التي تستخدمها)

للدراسة

للعمل

الخدمات المصرفية عبر الإنترنت

التسوق عبر الإنترنت

الترفيه والمرح (الموسيقى والفيديو و الألعاب)

لاستعراض السلع و المنتجات الجديدة دون شراء عبر الإنترنت

الأنشطة الاجتماعية (الشبكات الاجتماعية والبريد الإلكتروني و المنتديات)

أخرى ، أرجو ذكرها بالأسفل

VII ----- هل لديك بطاقة انتماء (مثل: فيزا ، ماستر كارد أو أمريكيان اكسپرس)؟

نعم

لا

VIII. ----- إذا كنت تقوم بالتسوق عبر الانترنت، ما هي طريقة الدفع التي تفضلها؟

نقدا عند التسليم

بطاقات الانتماء

التحويل المصرفي

خدمة باي بال أو ما شابه ذلك

البطاقات مسبقة الدفع

خدمة Sadadd

أنا لا أتسوق عبر الإنترنت

IX.----- تقريبا ، كم تنفق على التسوق عبر الانترنت في السنة؟

أنا لا أتسوق عبر الإنترنت

أقل من 1٠000 ريال سعودي

1٠001 ريال إلى 5٠000 ريال سعودي

5٠001 ريال إلى 20,000 ريال

20,001 ريال إلى 40٠000 ريال

40٠001 ريال إلى 60٠000 ريال

أكثر من 60,000 ريال سعودي

-----X. هل تعرف عنوان منزلك البريدي؟

(مثال : الشارع / المبنى ، صندوق بريد أو رقم خدمة واصل)

نعم

لا

XI. ما هي الأسباب التي قد تمنعك من التسوق عبر الإنترنت؟

(يرجى اختيار جميع الخيارات التي تنطبق عليك)

أساليب أمنية وقلة توفر المواقع الموثوق بها

الهطالة الانتمانية

بسبب ضعفي في اللغة الإنجليزية

عدم القدرة على معاينة المنتجات حسيّاً قبل الشراء

لا أعرف كيف أتسوق عبر الإنترنت

أنا لا أعرف عنواني البريدي

لا يوجد الكثير من تجار التجزئة لديهم مواقع للبيع عبر الإنترنت

أسباب أخرى، يرجى تحديدها بالأسفل

XII. ما هي المنتجات التي تشتريها من الإنترنت ؟ (يرجى اختيار جميع الخيارات التي تنطبق)

أنا لا تسوق عبر الإنترنت

الإلكترونيات وأجهزة الكمبيوتر و الهواتف النقالة

المجوهرات و الاكسسوارات

دفع فواتير الخدمات

الخدمات المصرفية الأخرى

منتجات الصحة والجمال و العطور

السفر والعطلات (تذاكر النقل ، حجوزات الفنادق واستئجار السيارات)

القرطاسية و الكتب

أجهزة منزلية

صحف ومجلات

برامج الكمبيوتر والألعاب

السيارات والقوارب والدراجات النارية

أخرى - يرجى تحديد

يكرت مقياس :

1.أوافق بشدة

2.موافق

3. محايد

4.لا أوافق

5.لا أوافق بشدة

1 . أعتقد أن التسوق الإلكتروني يجعل الحياة أسهل

2 . لدي معرفة جيدة عن مزايا التسوق الإلكتروني ومخاطره

3 . لدي مهارات جيدة لاستخدام الكمبيوتر و الانترنت للتسوق عبر الإنترنت

4 . وسائل الإعلام السعودية (التلفزيون، الإذاعة و الصحف) تقوم بتوعية الناس عن مزايا ومخاطر التسوق الإلكتروني

- 5 . أعتقد أن لدينا المناهج الدراسية الجيدة التي تشجع وتدعم استخدام التكنولوجيات الجديدة مثل الكمبيوتر، الإنترنت و التسوق الإلكتروني
- 6 . لدي معرفة جيدة باحتياجات أمن المعلومات التي يمكن أن تحميني من الاحتيال عبر الإنترنت
- 7 . في كل مرة أقوم بزيارة موقع جديد للتسوق عبر الإنترنت، أقوم بقراءة شروط الموقع أولاً قبل الشراء
- 8 . أعتقد أن معرفة اللغة الإنجليزية أمر ضروري جداً للاستخدام مواقع التسوق الإلكتروني
- 9 . أفضل التسوق التقليدي (الذهاب للسوق) بدلاً من شراء السلع من الإنترنت
- 10 . أنا لا أستخدم التسوق الإلكتروني بسبب تعارضه مع الدين الإسلامي في بعض النقاط مثل استخدام البطاقات الائتمانية
- 11 . أنا أستخدم فقط مواقع التسوق الإلكتروني التي قد تمت تجربتها من قبل الأصدقاء أو الأقارب
- 12 . أعتقد أن هنالك قوانين فعّالة لحماية خصوصية المستهلك في السعودية
- 13 . أعتقد أن هناك قوانين فعّالة لمكافحة الجرائم الإلكترونية
- 14 . أعتقد أن البيئة القانونية مناسبة لإستخدام التسوق الإلكتروني في السعودية
- 15 . تبدي الحكومة السعودية التزام جيد لدعم وتشجيع التسوق الإلكتروني
- 16 . أعتقد أن شركات التجزئة السعودية على استعداد لتقديم مواقع التسوق الإلكتروني
- 17 . هناك العديد من الشركات السعودية التي تقدم مواقع للتسوق عبر الإنترنت
- 18 . خدمات الاتصالات و الانترنت في السعودية موثوق بها وفعالة لدعم استخدام التسوق الإلكتروني
- 19 . خدمات الاتصالات غير مكلفة للغاية مقارنة مع جودتها العالية
- 20 . المؤسسات التجارية والمالية (الشركات والبنوك) قادرة على دعم معاملات التسوق الإلكتروني
- 21 . الخدمات البنكية التي تقدمها البنوك السعودية موثوق بها وفعالة لدعم التسوق الإلكتروني
- 22 . خدمات البريد السعودي موثوق بها وفعالة لدعم التجارة الإلكترونية من حيث توصيل المشتريات بنجاح

I. General information

1. Occupation:
 - a) Unemployed
 - b) Student
 - c) Public sector employee
 - d) Private sector employee
 - e) Businessman \ businesswoman
 - f) Retired
 - g) Housewife

2. Age:
 - a) Under 21 years old
 - b) 21 to 30 years old
 - c) 31 to 40 years old
 - d) 41 to 50 years old
 - e) 51 to 60 years old
 - f) Older than 60 years

3. Gender:
 - a) Male
 - b) Female

4. Marital status?
 - a) Single
 - b) Married

5. Nationality:
 - a) Saudi Arabian
 - b) None Saudi. Please specify your nationality (optional)

6. Educational level:
- a) Illiterate
 - b) Elementary
 - c) Intermediate
 - d) Secondary
 - e) Bachelor
 - f) Master
 - g) PhD
7. Occupational status:
- a) Unemployed
 - b) Student
 - c) Public sector employees
 - d) Private sector employee
 - e) Businessman \ businesswoman
 - f) Retired
 - g) Housewife
8. In which area of Saudi Arabia do you live?
- a) Riyadh
 - b) Makkah
 - c) Madinah
 - d) Eastern
 - e) Asir
 - f) Al-Baha
 - g) Tabuk
 - h) Qassim

- i) Hail
- j) Al-Jouf
- k) Northern Borders
- l) Jizan
- m) Najran

9. Monthly income or Monthly budget (optional)

- a) Less than 2,000 SR monthly
- b) 2,001 SR to 4,000 SR monthly
- c) 4,001 SR to 8,000 SR monthly
- d) 8,001 SR to 15,000 SR monthly
- e) 15,001 SR to 25,000 SR monthly
- f) 25,001 SR to 50,000 SR monthly
- g) More than 50,000 SR monthly

10. How you would describe your familiarity of English language?

- a) Advance
- b) Intermediate
- c) Elementary
- d) Beginner
- e) I do not know English language at all

II. General questions about internet usage

1. Do you use internet?

- a) Yes
- b) No

2. When did you start using the Internet?

- a) Less than two years

- b) Two to five years
 - c) Five to ten years
 - d) More than ten years
3. Which type of internet access do you use (please tick all types apply)
- a) From home personal computer
 - b) From Ipad or tablet computer on the go
 - c) From mobile phone on the go
 - d) From workplace computer
 - e) From internet cafés
 - f) From school/university/library computer
4. How often do you use the internet?
- a) Often
 - b) Sometimes
 - c) Rarely
 - d) Never
5. How you would describe your Internet skills
- a) Very Good
 - b) Barely Acceptable
 - c) Poor
6. Why do you use internet? (please tick all things apply)
- a) Search (study, work or research in a scientific sites)
 - b) Internet banking services
 - c) Online shopping
 - d) Entertainment and fun (music, video and games)

- e) To view the goods and new products without buying online
 - f) Social activities (social networks, email, forums)
 - g) Other, please specify
7. Do you have a credit card (Visa, MasterCard or American Express)?
- a) Yes
 - b) No
8. If you do online shopping, what is the payment method do you prefer to use?
- a) Cash on delivery
 - b) Credit cards
 - c) Bank transfer
 - d) PayPal or similar service
 - e) Prepaid cards
 - f) Sadadd service
 - g) I do not purchase online
9. Roughly, how much do you spend in online shopping per year?
- a) I do not purchase online
 - b) Less than 1,000 SR
 - c) 1,001 SR to 5,000 SR
 - d) 5,001 SR to 15,000 SR
 - e) 15,001 SR to 40,000 SR
 - f) 40,001 SR to 60,000 SR
 - g) 60,001 SR to 100,000 SR
 - h) More than 100,000 SR
10. Do you know your home postal address in Saudi Arabia?

(Example: street/building, PO Box and Number of Wasel service)

- a) Yes
- b) No
- c) I heard about the Wasel service, but I do not know what my postal address is

11. What are the reasons that may prevent you to shop online?

(Please select all options apply)

- a) security reasons and lack of trusted websites
- b) I do not have a credit card
- c) because of my weakness of English language
- d) Inability to physically preview the products before purchase
- e) I do not know How to shop online
- f) I do not know my postal address
- g) There are no many retailers offering online shopping websites
- h) Other reasons - Please specify.....

12. What types of products do you purchase from online shops? (Please select all options that apply)

- a) I do not shop online
- b) Electronics, computers and mobiles phones
- c) Jewelleries and accessories
- d) pay utility bills or doing other banking services
- e) Health, beauty and perfumes
- f) Clothing
- g) Travel and holidays (transportations tickets, hotel bookings and car rentals....)
- h) Stationery and books
- i) Home appliances

- j) Newspapers and magazines
- k) Computer software's and games
- l) Cars, boats and motorbikes
- m) Other - please specify.....

Likert Scale: 1, strongly agree; 2, agree; 3, neutral; 4, disagree; 5, strongly disagree.

III. Awareness

Hypothesis: Consumer awareness of e-commerce has a significant and positive impact on ecommerce adoption

1. I believe that e-shopping makes the life easier
2. I have good knowledge about e-shopping advantages and threats
3. I have good e-skills to use computer and internet to shop online
4. I believe that media in Saudi Arabia (TV, radio and newspapers) provides useful e-shopping enlightenment
5. I believe that we have good educational curriculums that promote our knowledge in terms of new technologies such as e-skills and e-shopping
6. I have good knowledge of trust and information security precautions that can protect me against internet fraud and deception
7. Every time I visit new online shopping website to make a purchase, I read its sales terms and conditions first

IV. Social and religion

Hypothesis: Social factors including culture, language and religion have a significant and positive impact on ecommerce adoption.

1. I think knowing English language is very essential to use e-shopping websites

2. I prefers physical shopping rather than purchase my goods online
3. I do not use online shopping because of some Islamic religion roles such as financial and credits cards issues
4. I only use online shopping websites that been recommended to me by my friends or relatives

V. Government e-readiness

Hypothesis: Government e-readiness has a significant and positive impact on e-commerce adoption.

1. I believe that there are effective laws to protect consumer privacy
2. I believe that there are effective laws to combat cyber crime
3. I believe that the legal environment is conducive to conduct e-shopping
4. The government demonstrates strong commitment to promote e-shopping

VI. Market force

Hypothesis: Market forces e-readiness has a significant and positive impact on e-commerce adoption.

1. I believe that Saudi retailers companies are ready to offer online stores websites
2. There are many Saudi companies offering online shopping websites

VII. Supporting industries e-readiness

Hypothesis: Supporting industries e-readiness has a significant and positive impact on e-commerce adoption.

1. The telecommunication services are reliable and efficient to promote e-shopping use

2. The telecommunication services provided to the individuals are very inexpensive comparing to their high quality
3. The technology infrastructure of commercial and financial institutions (companies and banks) is capable of supporting e-shopping transactions
4. Banking services provided by Saudi commercial banks are reliable and efficient to support e-shopping
5. Saudi post system and services are reliable and efficient to support e-commerce and e-business

Appendix 4: SMEs' Survey

SMEs Survey

أ. معلومات عامة

1. الاسم (اختياري)

2. الوظيفة:

3. العمر :

أ) تحت 21 سنة

ب) 21-30 سنة

ج) 31-40 سنة

د) 41 إلى 50 سنة

هـ) 51 إلى 60 سنة

و) أكبر من 60 عاما

4. الجنس:

أ) ذكر

ب) أنثى

5. الجنسية :

أ) سعودي

ب) غير سعودي. الرجاء ذكر الجنسية.....

6. المستوى التعليمي :

أ) أمي – لا أقرأ ولا أكتب

ب) ابتدائي

ج (متوسط

د) ثانوي

هـ) بكالوريوس

و) ماجستير

ز (دكتوراه

7 . القطاع التجاري.....

8 . حجم الشركة :

أ) صغيرة

ب) متوسطة

IX ----- . عدد الموظفين:

10 أو أقل

11 إلى 20 موظف

21 إلى 40 موظف

41 إلى 60 موظف

61-100

أكثر من 100

IX----- . عمر الشركة بالسنوات:

تحت 11 سنة

11 إلى 20 سنة

21-30 سنة

31-40 سنة

41 إلى 50 سنة

أكثر من 50 عاما

X ----- . المنطقة التي يوجد بها الموقع الرئيسي للشركة:

أ) منطقة الباحة

(ب) منطقة الحدود الشمالية

(ج) منطقة الجوف

(د) منطقة المدينة المنورة

(هـ) منطقة القصيم

(و) منطقة الرياض

(ز) المنطقة الشرقية

(ح) منطقة عسير

(ط) منطقة حائل

(ي) منطقة جيزان

(ك) منطقة مكة المكرمة

(ل) منطقة نجران

(م) منطقة تبوك

-----XI. الهيزانية السنوية الشركة (اختياري)

أقل من 100,000 ريال سعودي

101,000 إلى 250,000 ريال سعودي

251,000 إلى 500,000 ريال سعودي

501,000 إلى 1,000,000 ريال سعودي

1,000,001 إلى 2,000,000 ريال سعودي

2,000,001 إلى 5,000,000 ريال سعودي

5,000,000 إلى 10,000,000 ريال سعودي

أكثر من 10,000,000 ريال سعودي

II. استخدام التجارة الإلكترونية

فرضية: الوضع الحالي لاستخدام التجارة الإلكترونية له تأثير كبير وإيجابي على التنظيم المؤسسي للتجارة الإلكترونية.

أي جملة مما يلي تصف وضع التجارة الإلكترونية الحالية في شركتكم؟

(أ) غير متصلين بشبكة الإنترنت ولا نستخدم البريد الإلكتروني

(ب) متصلين بالإنترنت و نستخدم البريد الإلكتروني ولكن ليس لدينا موقع على شبكة الإنترنت

(ج) لدينا صفحة ويب ثابتة لنشر معلومات الشركة الأساسية على شبكة الإنترنت دون أي تفاعل

(د) لدينا صفحة ويب تفاعلية يتم عبرها قبول الاستفسارات والطلبات فقط دون إتمام لعمليات البيع آليا

ه) لدينا موقع على شبكة الإنترنت لعرض وبيع المنتجات الكترونيا كما يقدم خدمات الكترونية بما في ذلك خدمة العملاء
و) تم دمج متجرنا على شبكة الإنترنت بشكل كامل مع كافة قطاعات الشركة و الموردين والعملاء ، وغيرها من نظم المكاتب
الخلفي مما يسمح بمعظم المعاملات بأن تجرى إلكترونيا

النطاق: 1 ، أوافق بشدة ، 2، توافق ، 3، محايد ، 4، نختلف ، 5، لا أوافق بشدة .

1. نحن على علم باستخدامات شركائنا في العمل للتجارة الالكترونية
2. نحن على علم باستخدامات منافسينا في العمل للتجارة الالكترونية
3. نحن على علم بمزايا ومخاطر استخدام التجارة الإلكترونية في نشاطنا التجاري
4. نحن على علم بأنظمة التجارة الإلكترونية التي يمكن استخدامها في نشاطنا التجاري
5. نحن على علم بالفوائد المتوقعة من استخدامنا للتجارة الإلكترونية في نشاطنا تحديداً
6. لدينا فكرة عن ما إذا كانت التجارة الإلكترونية تؤثر على طريقة تسيير العمل في نشاطنا التجاري أم لا
7. نحن نعتقد بأن الشركات التي تقبل في استخدام التجارة الالكترونية في مجالنا التجاري ستكون في وضع تنافسي سيئ
8. معظم موظفينا مؤهلين على استخدام الحاسب الآلي
9. معظم موظفينا لديهم أجهزة الكمبيوتر في العمل
10. لدينا القدرة على توظيف متخصصين في الحاسب الآلي إذا لزم الأمر
11. العلاقات الاجتماعية في شركتنا جيدة ونثق ببعضنا البعض
12. تواصل موظفينا بين مختلف المستويات الإدارية مفتوح دوماً
13. لدينا ثقافة تبادل المعلومات على مستوى مؤسستنا
14. لدينا سياسة تدعم مبادرات تبني التجارة الإلكترونية من جذورها
15. التسامح عند الفشل موجود في شركتنا
16. شركتنا قادرة على التعامل مع التغيرات السريعة
17. لدينا خبرة كافية للتعامل من الشبكات و برمجياتها داخل شركتنا
18. لدينا موارد مالية كافية لتوفير وتبني أنظمة التجارة الإلكترونية
19. مؤسستنا هي محوسبة بشكل جيد مع شبكات LAN و WAN
20. لدينا اتصال إنترنت عالي السرعة في شركتنا
21. الأنظمة الموجودة لدينا مرنة وتقبل التغيير
22. لقد تم بناء الأنظمة التي نستخدمها خصيصا لتلبية إحتياجات عملائنا
23. لدينا القدرة على توفير موارد تكنولوجية كافية إذا لزم الأمر
24. لدينا رؤية واضحة للتجارة الإلكترونية
25. رؤيتنا لأنشطة التجارة الإلكترونية مفهومة على نطاق واسع في جميع أنحاء الشركة
26. لدينا استراتيجية تقودنا لإستخدام وتبني التجارة الإلكترونية
27. جميع مشاريعنا نحو التجارة الإلكترونية لها متبنيين ومتابعين
28. الإدارة العليا تتبنى مبادرات التجارة الإلكترونية و تطبقها
29. نحن نحدد الأدوار والمسؤوليات بشكل واضح في كل مشروع للتجارة الإلكترونية
30. تتم متابعة المسؤولين عن مشاريع التجارة الإلكترونية الحالية بشكل مستمر

31. يتم إعطاء صلاحيات إتخاذ القرار للمسؤولين عن مشاريع التجارة الإلكترونية في شركتنا
32. نحلل بدقة التغييرات المحتملة التي قد تحدث لشركتنا، موردين، شركائنا أو لعملائنا نتيجة لتنفيذ كل مشروع للتجارة الإلكترونية
33. نستخدم طرق منهجية لإدارة قضايا التغيير نتيجة لإستخدام التجارة الإلكترونية
34. نقوم بدراسة مفصلة عند تنفيذ كل مشروع للتجارة الإلكترونية
35. لدينا مقاييس واضحة لتقييم مشاريع التجارة الإلكترونية في شركتنا
36. يدعم موظفونا في جميع المستويات مشاريع التجارة الإلكترونية الخاصة بنا
37. عملاءنا على استعداد لإستخدام التسوق عبر الإنترنت
38. شركاءنا على استعداد لإجراء معاملاتنا التجارية عبر شبكة الإنترنت
39. لا اعتقد أن استخدام عملاءنا للتجارة الإلكترونية قد تتأثر سلباً بالعادات والتقاليد الدينية والاجتماعية
40. اعتقد أن إقبال المستهلكين السعوديين على استخدام التجارة الإلكترونية يتأثر إيجابياً بوعيهم حول التسوق الإلكتروني
41. اعتقد أن هناك قوانين فعالة لحماية خصوصية المستهلك في السعودية
42. اعتقد أن هناك قوانين فعالة لمكافحة الجرائم الإلكترونية في السعودية
43. اعتقد أن البيئة القانونية مناسبة للقيام بالأعمال التجارية على شبكة الإنترنت في السعودية
44. تبدي الحكومة السعودية التزام جيد لدعم وتشجيع التسوق الإلكتروني
45. خدمات الاتصالات و الإنترنت في السعودية موثوق بها وفعالة لدعم إستخدام التجارة الإلكترونية
46. المؤسسات التجارية والمالية المساندة (الشركات الخدمية والبنوك) قادرة على دعم معاملات التسوق الإلكتروني
47. اعتقد بأن مقدمي الخدمات التكنولوجية والاتصالات المحليين يقدمون الدعم الكافي لنا لإنجاح مشاريع التجارة الإلكترونية
48. المعاملات الإلكترونية الآمنة (SET) و تأمين بيئة التجارة الإلكترونية (SCCE) هي خدمات متوفرة بسهولة وبأسعار معقولة
49. الخدمات المصرفية التي تقدمها المصارف التجارية السعودية هي موثوق بها وفعالة لدعم التجارة الإلكترونية
50. خدمات البريد السعودي موثوق بها وفعالة لدعم التجارة الإلكترونية

II. General information

1. Participant name (optional)
2. participant position:.....
3. Age:
 - a) Under 21 years old
 - b) 21 to 30 years old
 - c) 31 to 40 years old
 - d) 41 to 50 years old
 - e) 51 to 60 years old
 - f) Older than 60 years
4. Gender:
 - a) Male
 - b) Female
5. Nationality:
 - a) Saudi Arabian
 - b) None Saudi, please specify
6. Educational level:
 - a) None
 - b) Elementary
 - c) Intermediate
 - d) Secondary
 - e) Bachelor
 - f) Master
 - g) PhD
7. Industry Sector:.....
8. Firm size:
 - a) Small
 - b) Medium

9. Business age in years:

- a) Under 11 years
- b) 11 to 20 years
- c) 21 to 30 years
- d) 31 to 40 years
- e) 41 to 50 years
- f) Older than 50 years

10. Employees number:

- a) 10 or Under
- b) 11 to 20
- c) 21 to 40
- d) 41 to 60
- e) 61 to 100
- f) More than 100

11. Company's geographical location

- a) Al Bahah
- b) Al Hudud ash Shamaliyah
- c) Al Jawf
- d) Al Madinah
- e) Al Qasim
- f) Al Riyadh
- g) Ash Sharqiyah
- h) Asir
- i) Ha'il
- j) Jizan
- k) Makkah
- l) Najran
- m) Tabuk

12. Annual business budget (optional)

- 1) Less than 100,000 SR

- 2) 101,000 SR to 250,000 SR
- 3) 251,000 SR to 500,000 SR
- 4) 501,000 SR to 1,000,000 SR
- 5) 1,000,001 SR to 2,000,000, SR
- 6) 2,000,001 SR to 5,000,000, SR
- 7) 5,000,001 SR to 10,000,000, SR
- 8) More than 10,000,000 SR

III. E-commerce adoption

Hypothesis: E-commerce adoption status has a significant and positive impact on e-commerce institutionalisation.

Which one of the following best describes your current e-commerce status? (Please choose only one option)

- a) Not connected to the Internet, no e-mail
- b) Connected to the Internet with e-mail but no web site
- c) Static Web that is publishing basic company information on the web without any interactivity
- d) Interactive web presence that is accepting queries, e-mail; and form entry from users
- e) Transactive web that is online selling and purchasing of products and services including customer service
- f) Integrated web that is the web site is integrated with suppliers, customers and other back office systems allowing most of the business transactions to be conducted electronically

Scale: 1, strongly agree; 2, agree; 3, neutral; 4, disagree; 5, strongly disagree.

IV. Awareness

Hypothesis 1: SME awareness of e-commerce has a significant and positive impact on e-commerce adoption.

- a) Our organization is aware of e-commerce implementations of our partner organizations

- b) Our organization is aware of our competitors' e-commerce and e-business implementations
- c) Our business recognizes the opportunities and threats enabled by e-commerce
- d) Our organization understands e-commerce business models that can be applicable to our business
- e) We understand the potential benefits of e-commerce to our business
- f) Our organization has thought about whether or not e-commerce impacts on the way business is to be conducted in our industry
- g) Our organization has considered whether or not businesses in our industry that fail to adopt e-commerce and e-business would be at a competitive disadvantage

V. Human resources

Hypothesis: Human resources have a significant and positive impact on e-commerce adoption.

- a) Most of our employees are computer literate
- b) Most of our employees have unrestricted access to computers
- c) We believe that we have the capability to employ computer professionals if needed

VI. Business resources

Hypothesis: Business resources have a significant and positive impact on e-commerce adoption.

- a) Our people are open and trusting with one another
- b) Communication is very open in our organization
- c) Our organization exhibits a culture of enterprise-wide information sharing
- d) We have a policy that encourages grass roots e-commerce initiatives
- e) Failure can be tolerated in our organization
- f) Our organization is capable of dealing with rapid changes

VII. Technological resources

Hypothesis: Technological resources have a significant and positive impact on e-commerce adoption.

- a) We have sufficient experience with network based applications

- b) We have sufficient business resources to implement e-commerce
- c) Our organization is well computerized with LAN and WAN
- d) We have high bandwidth connectivity to the Internet
- e) Our existing systems are flexible
- f) Our existing systems are customizable to our customers' needs
- g) We have the capability to supply sufficient technological resources if needed

VIII. Commitment

Hypothesis: Commitment has a significant and positive impact on e-commerce adoption.

- a) Our business has a clear vision of e-commerce
- b) Our vision of e-commerce activities is widely communicated and understood throughout our company
- c) Our e-commerce implementations are strategy-led
- d) All our e-commerce initiatives have champions
- e) Senior management champions our e-commerce initiatives and implementations

IX. Governance

Hypothesis: Governance has a significant and positive impact on e-commerce adoption.

- a) Roles, responsibilities and accountability are clearly defined within each e-commerce initiative
- b) E-commerce accountability is extracted via on-going responsibility
- c) Decision-making authority has been clearly assigned for all e-commerce initiatives
- d) We thoroughly analyze the possible changes caused to our organization, suppliers, partners, and customers as a result of each e-commerce implementation
- e) We follow a systematic process for managing change issues as a result of e-commerce implementations
- f) We define a business case for each e-commerce implementation or initiative
- g) We have clearly defined metrics for assessing the impact of our e-commerce initiatives

- h) Our employees at all levels support our e-commerce initiatives

X. Market forces e-readiness

Hypothesis: Market forces e-readiness has a significant and positive impact on e-commerce adoption.

Hypothesis: Social factors including culture, language and religion have a significant and positive impact on ecommerce adoption.

Hypothesis: Consumer awareness of e-commerce has a significant and positive impact on e-commerce adoption

- a) We believe that our customers are ready to do business on the Internet
- b) We believe that our business partners are ready to conduct business on the Internet
- c) We do not believe that intention of Saudi consumers to use ecommerce is affected by religious and cultural manners.
- d) We do not believe that Saudi consumers' intention to use ecommerce is affected by their awareness of e-shopping

XI. Government e-readiness

Hypothesis: Government e-readiness has a significant and positive impact on e-commerce adoption.

- a) We believe that there are effective laws to protect consumer privacy
- b) We believe that there are effective laws to combat cyber crime
- c) We believe that the legal environment is conducive to conduct business on the Internet
- d) The government demonstrates strong commitment to promote e-commerce

XII. Supporting industries e-readiness

Hypothesis: Supporting industries e-readiness has a significant and positive impact on e-commerce adoption.

- a) The telecommunication infrastructure is reliable and efficient to support e-commerce and e-business


- b) The technology infrastructure of commercial and financial institutions is capable of supporting e-commerce transactions
- c) We feel that there is efficient and affordable support from the local IT industry to support our move on the Internet
- d) Secure electronic transaction (SET) and/or secure electronic commerce environment (SCCE) services are easily available and affordable
- e) Banking services provided by Saudi commercial banks are reliable and efficient to support e-commerce
- f) Saudi post system is reliable and efficient to support e-commerce and e-business

Appendix 5: Poster %:

Factors affecting E-commerce Adoption by SMEs (B2C) in Saudi Arabia: an explorative study

Maher Alhindi, Professor Alessio Ishizaka, Dr. Mark Xu, Dr. Martin Read

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Abstract

This study has been conducted in order to: First, test the factors of Perceived E-readiness Model of E-commerce adoption (PERM) designed by Molla & Licker (2005) and their appropriateness to the case of Saudi Arabia. Second, identify the potential factors that may affect SMEs' adoption of e-commerce in Saudi Arabia in particular. Therefore, a qualitative exploratory study has been designed and conducted to collect required data using a semi-structured interview survey. A total of 13 decision makers from a random sample of Saudi SMEs have been interviewed. Collected data were qualitatively analysed. The results show that the majority of PERM factors exists in the case of Saudi Arabia while few factors were rejected such as human resources readiness and business resources readiness. Also, the results indicated a number of other new factors that affects the adoption of e-commerce in Saudi Arabia in particular such as delivery issues, e-banking, education, culture and religious issues.

Literature

- Developing countries are encountering obstacles that affect the adoption of e-commerce which in turn has caused an obvious lack of use of this technology.
- SMEs are mainly slow in adopting e-commerce** for a number of reasons, such as uneducated stakeholders, limited resources and the lack of IT infrastructure (Lee G. & Xia, 2006; Lee J. , 2001; Mak & Johnston, 1999).
- Previous studies of IT adoption mainly considered one of five different perspectives** that affect the diffusion and adoption of new technology (Molla & Licker, 2005).
- Interactionism perspective is the only one that considers all of these perspectives.**
- Therefore, this one represents the base of Molla and Lickers' Perceived E-Readiness Model (PERM) which has been developed especially to address e-commerce adoption in **developing countries**.
- Two types of factors have been considered:
 - Organizational factors** e.g. awareness, human resources and business resources, technological Resources, commitment and governance.
 - Environmental factors** such as; market forces, governmental issues and supporting industries' issues.
- Molla and Licker (2005, p. 879) defined the PERM model as "an organization's assessment of the e-commerce, managerial, organizational, and external situations in making decisions about adopting e-commerce".
- The results of previous studies in Saudi context assured the existence of PERM factors and added a number of other factors such as social factors, consumer awareness and security issues.

Aim and Objectives


- The principal aim of this study is to identify those Factors affecting the Adoption of E-commerce by SMEs (B2C) in Saudi Arabia.
- To achieve this aim, this study needs to:
 1. **Identify the PERM factors appropriateness** to the case of Saudi Arabia.
 2. **Explore more potential factors** that may exist in the case of Saudi Arabia in particular.

Research Methodology

- Interpretivism paradigm** has been adopted with deductive reasoning research approach.
- Exploratory research methodology** has been adopted to explore and identify the factors that affect e-commerce adoption.
- Interview survey including a set of 16 **open ended questions** has been used to collect required information from a random sample of **13 SMEs decision makers** in Saudi Arabia.
- Qualitative approach** has been used to design and analysis the survey.

Results

- The results of conducted interviews have **confirmed the appropriateness of the majority of PERM factors** to the case of Saudi Arabia while **few factors have been rejected** such as human resources readiness and business resources readiness.
- The findings indicated **a number of new factors and subfactors** that affects the e-commerce adoption in Saudi Arabia in particular such as **delivery issues, e-banking, education, culture and religious issues**.



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For further information, please contact me at : maher.alhindi@port.ac.uk

Appendix 6: participation consent sheet

Participation consent and information sheet



Dear participant...

My name is Maher Alhindi. I have got a scholarship from the Ministry of Higher Education of Saudi Arabia to obtain my PhD degree from the Department of Operations and Systems Management at University of Portsmouth, United Kingdom. My PhD research title is "A Study of Critical Success Factors of Business-to-Customer Adoption of E-commerce by Small and Medium Enterprises in Saudi Arabia". The main aim of this research is to achieve better understanding of the status of e-commerce adoption in Saudi Arabia to help Saudi government and business' decision makers to design appropriate strategic plans to enhance e-commerce adoption and development in Saudi Arabia. In addition, in order to identify the factors that affect the adoption and development of e-commerce in Saudi Arabia by small and medium enterprises especially those are using B2C business type, I have planned to conduct this survey to collect primary data that could reflect some indications to identify these factors. Therefore, I would inform you that; your participation is voluntary, and you are free to withdraw from the interview at any point. Also, you will encounter no personal risk from participating in this study. The information you provide will be anonymous and kept strictly confidential. If you have any questions about the study, please do not hesitate to contact me, either by email or phone mentioned below.

AUTHORIZATION

Please read the following carefully before signing authorization;

- I have read the information above about the research project being undertaken by Mr. Maher Alhindi of PBS, University of Portsmouth.
- I have had the opportunity to have my questions related to this study answered and I know that should I have any comments or concerns resulting from my participation in this research, I may contact the researcher or his supervisor.
- I was informed that I could withdraw my consent at any time during the course of the interview by advising the researcher and that in completing this document I agree, of my own free will, to participate in this research.
- I understand that data collected during the study, may be looked at by individuals from University of Portsmouth. I give permission for these individuals to have access to my data.
- I was informed that the interviewer will use voice recording device to record the interview (If you don't agree with this point for any reason, then please tick I DON'T AGREE below)

➤ I DON'T AGREE To Use Voice Recording ()

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

Mr. Maher Alhindi
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Appendix 7: Questioner cover sheet

Questioner cover sheet



Dear participant...

Thank you for reading this. My name is Maher Alhindi. I have got a scholarship from the Ministry of Higher Education of Saudi Arabia to obtain my PhD degree from the Department of Operations and Systems Management at University of Portsmouth, United Kingdom. My PhD research title is "A Study of Critical Success Factors of Business-to-Customer Adoption of E-commerce by Small and Medium Enterprises in Saudi Arabia". The main aim of this research is to achieve better understanding of the status of e-commerce adoption in Saudi Arabia to help Saudi government and business' decision makers to design appropriate strategic plans to enhance e-commerce adoption and development in Saudi Arabia. In addition, in order to identify the factors that affect the adoption and development of e-commerce in Saudi Arabia by small and medium enterprises especially those are using B2C business type, I have planned to collect primary data that could reflect some indications to identify these factors by this questioner. Therefore, I would like to invite you to take part in my research study by completing this questionnaire. It is entirely up to you whether you participate but your responses would be valued. Also, I would inform you that you will encounter no personal risk from participating in this study. Your return of the questionnaire will be taken as evidence of your informed consent. Finally, the information you provide will be anonymous and kept strictly confidential and will be destroyed once the research finished. If you have any questions about the study, please do not hesitate to contact me, either by email or phone mentioned below.

Mr. Maher Alhindi
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It was done with the grace of God.